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Winter

Number 76 — June - August 1991 \$3.95

— SELF SUFFICIENCY AND PLANET CARE —

EARTH GARDEN

— FOR BUSH OR CITY ALTERNATIVES —



• Kitchen design
for owner builders

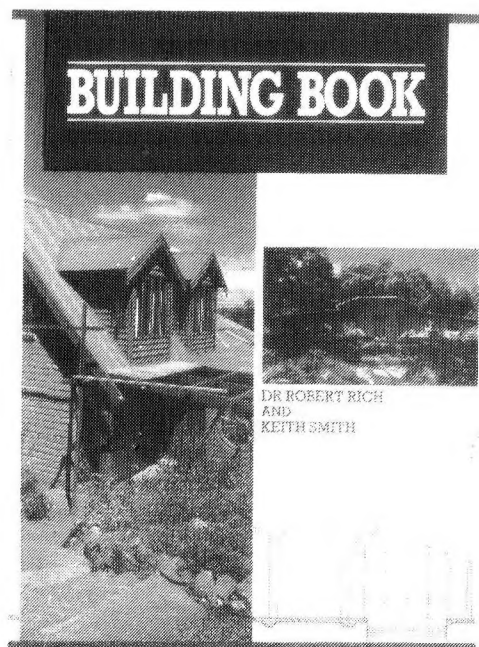
• Build a frost-proof solar hot water unit • Homemade cold cures
• The race for solar power • The Potato Harvest • Creating a rainforest,
part two • The Barter Directory • Handmade buttons and much more ...

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EARTH GARDEN BOOKS

Order form on page 56



EARTH GARDEN BUILDING BOOK

Design and build your own house

Dr Robert Rich and Keith Smith

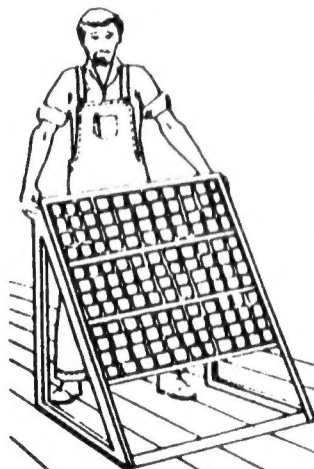
Nelson, 1987, 315 pages, illustrated, large format paperback.

This is the book many people have been waiting for since they first dreamt of building their own home from natural materials in harmony with their surroundings. It answers all the questions for Australian owner-builders. It's a 'practical book for dreamers' and it faces the difficult subjects square on. What the authors have done is show how anyone of average intelligence and reasonable health can build their own home, and probably not end up with a 25 year mortgage at the end of it all.

"This book is intended to provide an antidote to the stereotyped Australian suburban sprawl of red brick houses with red tile roofs, set squarely in a rectangle of ground," said authors Bob Rich, and former Earth Garden publisher and editor, Keith Smith.

EARTH GARDEN BINDERS TO PROTECT YOUR COLLECTION

These sturdy magazine binders have been produced to protect your collection of Earth Gardens. Each binder snugly holds 12 copies of Earth Garden and prevents tears, dog ears and bent pages. They're tough, and they look attractive on your bookshelf with the Earth Garden name and logo stamped in gold foil on the spine and cover. See page 56 to order.



ENERGY WORKS!

Home Energy Systems

By Keith Smith

Nelson, Melbourne, 1985, large format paperback, 211 pages, illustrated. □ \$19.95 posted.

Why spend the rest of your life paying someone else for your electricity? Here's how to plug in the renewable energy of the sun, wind or water using an efficient 12V or 240V solar electric system, wind generator or water turbine. Run lights, radio, TV, computers, tools and appliances wherever you live.

"The major part of this book is devoted to practical issues, hardware and actual installations.

"... This book should appeal to anyone with an interest in the supply of energy to weekenders, farms or other remote dwellings or even to the suburban household." — Dr C. J. L. Cornish of Murdoch University, WA, in *APACE WA Newsletter*.



HARD TIMES HANDBOOK

Keith and Irene Smith

A new, revised edition of The Hard Times Handbook is now available. As we enter the last decade of the Twentieth Century major changes in Australia's economic and social life are taking place. Unemployment, inflation and high interest rates continue to make times hard, no matter what our personal situation. The book includes over 180 practical household tips, over 150 recipes for cheap, healthy meals, how to make your own supplies, grow your own food and be prepared for emergencies. The German edition of this book sold like hotcakes! See page 56 to order. \$13 posted.

—SELF SUFFICIENCY AND PLANET CARE—
EARTH GARDEN
 —FOR BUSH OR CITY ALTERNATIVES—

Number 76
June — August 1991

Front Cover: Astrologer and author, Lilith Rochas, in her farmhouse style kitchen at Possum Creek, northern New South Wales. John Archer writes about design points for Australian kitchens in this issue. Photograph: John McCormick.

Back Cover: Negotiating the 'Log Jam' on the Franklin River in Tasmania's south-west wilderness. See page 40.

Tree tax: This month's tree tax will be donated to the Australian Trust for Conservation Volunteers for tree planting programs on degraded rural farmlands. Please write to Earth Garden to be considered for our tree tax if you are involved in, or know of, any worthy community tree planting scheme.

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Editor: Alan Thomas
Assistant Editor: Greg Simmons
Secretary: Karen Sandow
Gardening
Columnist: Jackie French
Book Review Editor: Sophie Masson
Illustrations: Bronwyn Halls.

EARTH GARDEN is Australia's original journal of self sufficiency and alternatives. It is intended as a forum of practical ideas, shared knowledge, sources and as a guide to alternatives to unfulfilling consumerist lifestyles.

It's about putting a roof over your head, growing your own food organically, aiming for appropriate, renewable home energy systems and surviving — and thriving — in the city or the bush, with the inner changes which follow when you're in harmony with Nature.

Each issue we donate a portion of the cover price to a community group involved in tree planting or forest conservation projects to help balance the use of the partly recycled paper used for printing Earth Garden. We would like to see all publishers pay a tree tax.

Contributions to Earth Garden are welcome — sharing information and experiences with other readers strengthens the network of Earth Gardeners. Photos, illustrations and diagrams are important when sending us contributions. Remember subscribers are sustainers — for subscription details see page 56.

We welcome advertisements appropriate to the aims and ideals of Earth Garden, but reserve the right to refuse ads at our discretion. Write to us for display rates.

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Dear readers,

Welcome to the winter edition of *Earth Garden*. Readjusting to the editor's desk is not easy after the adventures described on page 40!

Here in Victoria's Central Highlands we've had the driest half year I can remember. I'm glad the garden is six inches deep in mulch (old, broken down sawdust, from a huge pile discovered in the bush near home). The vegie garden hasn't suffered from 'the dry' because of the extensive mulching, and the flowering plants also seem to be prospering.

The main sufferers seem to be the humans — I've had to buy two tankloads of water this year. There's something demoralising about having to buy in drinking water. One summer there was a huge rainstorm the day after I bought a tankload of water, so this summer, expecting the same sequence of events, I tried to hold off buying water for a while after the tank dried up.

I filled water containers at the mineral spring next door, but it soon became obvious that I'd have to fork out the cash for the water carter. One project this winter is to install another water tank!

I'm surprised how well the vegie garden is prospering even though I haven't been able to water it for at least two months. The carrots are enormous and the spinach is racing along, while other winter vegies like the cauliflowers, Brussels sprouts, onions, cabbages and lettuces are also thriving.

There has been a very positive response to the article in the previous edition of *Earth Garden* about Rod Muller's steam engines. Rod tells me that people have been buying systems

following publication of the story. People from countries in the Pacific also look set to install several steam engines after reading about them in *Earth Garden*. One fact we didn't mention in the story was Rod Muller's address. If you want to find out more about the engines, or buy one, his address is: Taylor's Lane, Strathalbyn, South Australia; phone (085) 362489, or fax (085) 362113.

Recently I was having a yarn with my son Tane, who is now six and a half. He was painting some flags on squares of white linen tacked onto an old door set up as an easel. He was explaining the meaning of the flags to me.

"That one with the stars is the Australian flag," he said.

"The one with the stripes is from England and the one with the yellow sun is the Aboriginal flag."

"And what's the one with the big green shape on the middle?" I asked.

"Oh, that's Leonardo," he explained.

Wow! I thought. They learn about the great artists of the world in grade one these days!

"What? Leonardo da Vinci, the painter?" I asked, excited.

"No. Leonardo the Ninja turtle," he replied.

What could I say? There isn't even a TV in the house, but at least he enjoys planting seeds in the vegie patch with me as much as learning the latest TV lingo from his mates.

Happy reading,



Obituaries

by Keith Vincent Smith

Earth Garden founding Publisher

Two influential men, both of whom helped to popularise organic gardening and farming throughout the world, died on the same day last year — 20 September 1990. Both of them helped *Earth Garden* in our early years.

Lawrence D Hills (1911-1990)

Lawrence D Hills founded the Henry Doubleday Research Association (HDRA) in England in 1954. He named the organisation of gardeners and small holders growing plants without chemical fertilisers or poison sprays after Henry Doubleday (1813-1902), a Quaker who introduced Russian comfrey into Britain in the 19th Century. As its first Director-Secretary, then President until 1985, Lawrence Hills saw HDRA membership grow to 5,500 worldwide.

He was the author of many books, particularly *Organic Gardening*, *Comfrey*, *Past Present and Future*, *Down to Earth Gardening*, *In Place of Poisons* and *Fertility Without Fertilisers*, as well as numerous booklets such as the *Comfrey* and *Biological Pest Reports*. Lawrence Hills encouraged the formation of the first Australian branch of the HDRA at Kurrajong (Sydney) by Dr Corona Adams and June Fear in 1972.

In 1951 Hills became a full time horticultural journalist, writing for *The Farmer*, *Countryman*, *Observer* and *Punch* and reading organic gardening manuscripts for publishers Faber and Faber for 25 years. He became a well known promoter of comfrey, garlic spray, composting and organic growing methods through hundreds of radio and television appearances.

His wife, Hilda Cherry Hills, who died in early 1991, was the author of *Good Food Gluten Free*.

Robert Rodale (1939-1990)

Robert Rodale and his father were both fated to die while promoting the gospel of organic methods of growing.

Jerome Irving (J I) Rodale, the vital American prophet of natural living and self admitted 'health freak' who founded *Organic Gardening*, *Prevention* and *Compost Science* magazines, collapsed and died of a heart attack in 1971 at the age of 72 while recording an interview for the Dick Cavett television show.

We were upset to learn recently that, just 30 years later, J I's son Robert, president of the Rodale Press Inc publishing empire at Emmaus, Pennsylvania since 1954, died on 20 September 1990, following a car accident in Moscow where he was setting up a Russian language edition of *The New Farm* magazine.

We were greatly inspired and influenced by Robert Rodale's *Organic Gardening* magazine (and Stewart Brand's *Whole Earth Catalog*) when we first had the idea of publishing *Earth Garden*.

"I have read *Earth Garden* with considerable interest and enjoyment," he wrote to us in July 1972. "It was informative and entertaining." As well as this encouragement, Robert, then aged 42, allowed us to reprint (without payment) some of his *Organic Living* columns which the *Chicago Tribune* then syndicated to 37 US newspapers and the *Mainichi News* in Japan.

We printed the first of his wise and practical columns "Ten Questions and Answers," next to an article on "The Rodale Way" in *Earth Garden* 2. A plug for EG in *Organic Gardening* brought us scores of letters from the United States.

Robert edited most of the Rodale magazines as well as *The Basic Book of Organic Gardening* (1971), the first mass market paperback on the subject. The organic gardener, he said in that book, "knows that he is a living, contributing part of the cycle of life itself. He does not merely take. He is a giver, a sharer, a restorer". Vale Robert Rodale, who was all that and much more.



Earth People Write

Earth People Write is an open forum. The views expressed in letters from readers do not necessarily reflect the opinions of Earth Garden. Letters to Earth Garden are always very welcome.

Second generation Earth Gardener

Dear Earth Garden,

I am delighted to discover that Earth Garden is still going strong nearly 20 years after my mum first started buying copies in 1972. I was in primary school then. I've moved to Tassie from Victoria and have started to save for my own plot of earth. It's so cheap here!

Mum has given me all her old copies (in which I am still engrossed) and now I want to complete the set, and subscribe to future issues. Best wishes for a long and prosperous future.

Mary Gordon, New Norfolk, Tasmania.

Broadacre to postage stamp

Dear Earth Garden crew,

We're glad to join your very 'down to earth' and helpful magazine. We are currently changing our farm at Kingaroy from broadacre to an organic, self sufficient 'postage stamp' style. This is a long term project and we need all the tips we can get, so we do look forward to your magazine.

Yours faithfully,

Delbert and Roslyn Jackman, Wooroolin, Queensland.

Self-Build Scheme

Dear Earth Garden,

I am interested to hear from readers who are (or know someone who is) involved in the Victorian Government's

Self-Build Scheme. It is a scheme to allow lower income people a low interest government loan if they are prepared to build their own house, usually of mudbrick.

I live in Ballarat, am working part-time and would like to build up a network of other self builders. Please write to:

Sarah Fuller, 7 Seymour Crescent, Ballarat, Victoria, 3350.

Sustainers rule!

Dear people at Earth Garden,

I stumbled across your most informative magazine while browsing through the rack at the local newsagent. I was very taken with the relaxed and friendly way that the magazine generates information and warmth among its many readers.

I understand that by buying Earth Garden through a newsagent, only half the cover price makes its way back to you, so please find enclosed our subscription for the next year. My wife and I survived the 60s and the 70s, when there was a lot of emphasis on alternative lifestyles and self sufficiency. I have always been interested in the natural, organic way of growing plants, shrubs, vegetables and natives. My garden is showing its appreciation of my heavy and regular composting by its lush and green attractiveness. Keep up the friendliness and the good work. Kind regards,

Keith and Jennie Mitchell, Welling-ton Point, Queensland.

Dear Earth Garden,

G'day, g'day! How goes it? I would like to order some more back copies please. I order only four at a time because I would get severe eye strain if I got any more. Everything stops when the postie drops them off! It is really something to look forward too. I am sorry that you had to put the cover price up, but I *do* understand.

Do you let subscribers know when they have to renew? I wouldn't want to miss out on one copy! Keep up the good work, after all, without you, where would Earth Garden be?

Waiting patiently,

Sue Airs, Yerrinbool, New South Wales.

Fear not, Sue, we definitely let our subscribers know when they need to renew. And, indeed, where would Earth Garden be without you, after all, our subscribers are our sustainers.

Don't judge, act!

Dear Earth Garden and readers,

I read with much interest and appreciation the editorial on page two of EG 74. It clearly highlighted the problem that, in our desire for an environmentally friendly lifestyle, we can be too judgemental towards others and thereby defeat our objectives and possibly make some enemies. Perhaps it is better to discuss what we are doing just with our close friends and family groups and put our main efforts into joining environmental groups, write letters and

support co-operatives and other similar projects.

There are many benefits to be gained — lower energy and water bills, better health, fresh organic food and the satisfaction of learning new skills while becoming more self sufficient. Reduce, reuse, recycle. Peace and best wishes.
R Hennessy, Chester Hill, New South Wales.

Dear Earth Garden,

Your magazine is like a candle in a dark cave. It's comforting to know that there's like-minded people out there (many more than one might imagine) and that there's an alternative to the mindless, insane way the majority of people seem to prefer to live these days. Many thanks and congratulations on the good work.

Angie Lensink, Glendalough, WA.

Composting toilet study

Dear Earth Garden readers,

I am researching alternative sewage disposal systems as part of a village community project.

The different systems I have read about seem to pale against the common-sense and simplicity of the composting toilet. I have found, however, that people, and particularly councils, don't know much about composting toilets or their benefits and sometimes confuse the system with the pit toilet.

I would be grateful if readers with composting toilets could write to me about their experiences regarding installation and use. I am particularly interested in the following:

- which design you use
- problems getting council approval and how you overcame them
- results of any lab tests done on the compost
- the size of the holding tank against the number of people using it
- where you use the compost.

This information would aid our own submission and no doubt would compile into a useful booklet or report. I believe composting toilet systems are an important part of the cure to our growing waste disposal problems but as

yet I have not found an Australian case study. Thanks and best regards,
David Renn, PO Box 705, Byron Bay, New South Wales, 2481.

Dear Earth Garden,

Please send us the *Earth Garden Building Book*. We have borrowed it from the library and it's the best book we have found by far. We're building a mudbrick house and it should be a big help. Keep up the good work!

Ken and Maree Hamilton, Woodstock-on-Loddon, Victoria.

Tipi makers

Dear Alan,

Wow, what a surprise it was to see our humble tipi pitched at Uluru on the back cover of EG 73. After that spot we continued north to Darwin for the dry season and returned to The Centre before Christmas. We pitched the tipi again between Uluru and Kata Tjuta (The Olgas). One day we spotted an approaching dust storm — just a black line on the horizon. We parked the van in front of the tipi for protection, but the storm hit with such force it snapped one of our poles in half. So we sat on the ground holding the canvas for a good hour waiting for the storm to pass. Of course it didn't. Meanwhile, a local road worker turned up and said that a dust storm two weeks ago had lasted all night. So we depitched and blew our didjeridus to call in the rain. Sure enough it started raining and we drove to Kata Tjuta to witness the wondrous event.

From Uluru we went to the ConFest and joined in the celebrations. We have now settled at the Rainbow Temple, Rosebank, in northern New South Wales. Tipis are pitched on top of the hill with fantastic views of neighbouring valleys. We have perfected our rainsheets and have built a trench and wooden floor for the oncoming wet season.

Tipi living has changed our lives and put us in contact with Mother Earth and all that she offers. We now have an old Singer sewing machine and are going into the tipi manufacturing busi-

ness. We have had many requests for tips and would like to make it possible for others to experience such a way of life.

We are making 17 ft tipis out of 100 percent cotton with a door and rain sheet for \$1,000 each, without poles. For poles we charge an extra \$500 to collect, clean and oil them. At present there is a month's delay on orders. I would appreciate it if you could pass this information onto fellow Earth Garden readers. Yours sincerely,

Dr Pete and Flying Pig Tipis, Rainbow Temple, Rosebank, New South Wales, 2480.

Dear Alan,

I have just received EG 74 and read it with interest. Peter Pedals' contributions are always easy to read and understand by the lay-person. Also the articles on microwave ovens were revealing by commenting on the adverse points of the product that no retailer would talk about. Also, it is good to see progress being made towards a cleaner environment with the introduction of energy saving fluorescent lamps. Thanks a lot. Yours truly,
Erich Honig, Brushgrove, New South Wales.

Power conversions

Dear Alan,

I'm interested in basic self sufficiency this year. Any information on converting electrical equipment, electric grain mills for example, to alternate power will be gratefully received. Many thanks,
Valerie Hopkins, RSM 147, Nuttman Rd, Busselton, WA, 6280.

Dear Earth Garden,

I am so impressed with your magazine. Please supply me with a year's subscription and a copy of *The Earth Gardener's Companion*.

I have recently revived a childhood interest in gardening, and can only ask, where have I been all of these years? All the best to you all for the coming year.

EW Ellis, Panania, New South Wales.

Dear Alan,

I've just finished reading two old copies of *Earth Garden* that I found at the newsagent today. It's a great magazine, and I think the tree tax is a terrific idea. I'd love to buy all the books and back issues now, but I'll have to settle for a one year subscription and a couple of books.

Looking forward to a lifetime of reading EG.

Anne-Maree Hastings & Michael Kaser, Churchill, Victoria.

Recession pressure

Dear friends,

The economic situation has brought us down and all our plans have had to be put on hold. We've been lucky enough to let our half-built house at a nominal rent so that there is someone to water the trees. We've agisted the horse and sold the chooks and returned to Perth for the two years before Rolin retires. The cost of building materials, running two households and petrol costs for travelling between Perth and Donnybrook just became too much. We're now living in a very small, cheap house and trying to pay off bills. We're not sure of the state of our subscription to EG, but unfortunately it's one of the things that will have to go. Hopefully we can resubscribe in 1993. Best wishes. Peace and love.

Sheila Johnson, Karrinyup, WA.

Silk worms anyone?

Dear *Earth Garden*,

I have warm childhood memories of keeping silkworms and still have beautiful small pieces of silk which I spun on a little winder that my father made for me. It seems that a couple of generations have grown up never having had the experience of these fascinating and amazing creatures.

So when I was given six silkworms three years ago, I decided to breed them and distribute them to interested people. Last year I had over a million eggs, and received an amazing response to a short article in the local newspaper. As well as the children, there were many adults who had not

seen silkworms since their childhood and were delighted to obtain some for their children and grandchildren.

At present I have many thousands of eggs and would like to give them to any *Earth Garden* people who may wish to try their hand at spinning the beautiful golden threads.

The eggs are very small, so please send a stamped and addressed envelope to:

Phillipa Daniel, 1526 Ocean Drive, Lake Cathie, New South Wales, 2445.

Sweet peas and North American penpals

Dear Alan,

Does anyone know where I can get seeds of the old fashioned striped sweet peas like those I used to grow when I was a little girl in New Zealand?

I still have names and addresses of American and Canadian organic gardeners who would like to correspond with Australians. Their interests are varied but all are committed to making the Earth a safer place to live for us and its wildlife. If anyone would like to correspond, send me a stamped self-addressed envelope and I will be happy to pass on names and addresses. I've got so many I'm thinking of starting my own pen friends' club.

I love the idea of you using recycled paper and I am doing so myself. I'm trying hard to save for a subscription but it is difficult on a low income. Peace to all. Yours sincerely,

Shirley Svensson, 520 Musgrove Road, Coopers Plains, Queensland, 4108.

Dear Alan,

After eagerly awaiting for 'the lot' of EG, I was not disappointed when they arrived. I have been reading constantly for the last week and have found hundreds of tips and ideas. Thanks once again for a great magazine.

Jim Jeffery, Corinda, Queensland.

Dear EG,

My husband and I are professional gardeners who prefer to use organic methods as much as possible.

Your magazine is really great. One day we hope to use these methods on our own property. Our house gardens are organic and the results are amazing. Even our clients can't believe the difference. Keep up the good work. Thank you,

Just Gardening, Revesby, New South Wales.

Wool spirit will not dampen

Dear Alan,

We've had some lovely rain in our part of the world over the last two months, but sheep work, or even getting to them, is a nightmare with some areas like an inland lake.

Our 'wool production and sale' is in trouble again but the history books are full of such dramas and although there will be casualties, especially those with big debts, most of us are hopeful. Media and governments love to hate wool growers but we can live without being in favour and just get on with doing what we are good at — growing wool. Best wishes,

Patricia Shannon from waterlogged central western Queensland.

Dear Alan,

I am staying at a caravan park in town now, as the weather has repeatedly stopped us from getting the sheds up on our property. So everything sits there in the front paddock. Another slight interruption to our plans was the arrival of our daughter Tarryn in July. So much for our plans of not building with babies about. The best laid plans, and so on. At least I'm closer to the land and our dreams than I was in Sydney.

You have so much to do bringing out this great magazine and maintaining a life of your own. I don't know how you manage, but please keep it up. Love and peace,

Tegwan Edwards, West Kempsey, New South Wales.

Hi folks,

Here's a cheque for my subscription renewal and *The Earth Gardener's Companion*. Keep up all the words of wisdom, I'm sure you help many people

out in so many ways. Love, peace and happiness.

Kaz Reid, Cumbin Valley, Queensland.

Roach spray wanted

Dear Earth Garden,

I have been looking for a natural spray for cockroaches but so far without any luck. Could anyone help me. I enjoy the magazine, so please keep up the good work.

Jill Partridge, Lot 11 Winchester Crescent, Cooks Gap via Mudgee, New South Wales, 2850.

Dear Jill,

'Organic Control of Household Pests', written by EG columnist Jackie French, has details of controlling and eliminating cockroaches, including a recipe for nicotine spray. In this issue's Unclassifieds there is an advertisement about tobacco seeds, and the book is available from us for \$14.95 posted.

—Alan.

Dear EG,

I enjoy reading Earth Garden and I agree totally with the tree tax and support the ideas in EG, such as forming sustainable lifestyles. Such things serve the needs of our world today.

Mark Dubbelboer, Moil, Northern Territory.

Dear Alan,

I was very pleased to find in EG 75 that the *Hard Times Handbook* is available again. I have had a small property near Grafton for about nine months now which I am slowly establishing the Earth Garden way. Your magazine, which I discovered by accident a year ago, is helping me no end. It is marvelous. All the best to you and the gang. **Graeme Nichols, Forestville, New South Wales.**

Fuelling the Aga

Dear Alan,

Just a brief note regarding a letter I noticed on page four of EG 75 headed 'The classic wood-burning stove'. It

was about somebody wishing to sell an Aga cooker.

The Aga was designed to operate on coke, a common fuel in the days when town gas was made from coal. Coke was the residue after the coal had been heated and the gas expelled. Now, in many cities throughout the world, natural gas has replaced coal gas and coke is no longer as cheap or readily available. The Aga has never been designed to operate on wood, although in recent years they have been run on oil or gas.

There are still a lot of old Agas about. Each year we have enquiries from people wanting to sell an old one they have found under a tree, in a shed or even ones that are still working. Spare parts for these old units are not available in Australia, so unfortunately the market for old Agas is very small indeed.

New Aga cookers are still available as gas fired units but are so heavy that they are supplied in pieces and built on site. They come in a range of colours and sizes, the smallest costing about \$8,000. Regards,

Andrew Blair, Outlook Alternatives, Wangaratta, Victoria.

A kit to convert Agas to burn wood is available from a company in Seymour, Victoria: Scandia, PO Box 372 Seymour, 3660, (phone 057 92 2388).

—Alan.

Curing and smoking without chemicals

Dear Earth Gardeners,

We are seeking information about curing and smoking meat, fish and poultry. We would like to hear from anyone who has tried and succeeded. We use a cold smoke house and are interested in curing without chemicals. If you can help please write to: **June and Tony Redmond, RMB 128, Delegate, New South Wales, 2633.**

Dear Editor,

My wife and I came across Earth Garden quite by accident in a newsagency, and have not put it down since. We find it very interesting read-

ing and therefore enclose our subscription. We have five acres near Nanango which we bought bare and are developing ourselves — no mean feat, considering we are both senior citizens.

Keep up the excellent magazine. Yours fraternally,
R F Harvey, Bribie Island, Queensland.

Working horses association?

Dear Alan,

In EG 74, page 21, you have a short article with a great photo about working horses. I believe that there is a 'Working Horse Association', and wonder if this article was supplied by them. Can you provide me with any contacts please.

We are long standing Earth Garden subscribers and have spent the last six years developing an organic orchard and building a stone house on our farm on the far south coast of New South Wales.

We bought a draught horse, part trained, about six months ago and have greatly enjoyed training her, working with her and going into town in the sulky. Keep up your good work,
P Hillard, New South Wales.

Growing natives

Hello,

I'm looking for information on native Australian wildflowers, fruit, nuts and berries, herbs, grains, vegies, trees and shrubs. I am also interested in Aboriginal agriculture and the foods they eat, including Aussie bush tucker.

I have written to the Seed Savers Network, to purchase old style seeds. Could you set me on the right track to get this information as I'm trying to be as self sufficient, organic and native as I can. Any help appreciated. Yours,
Rolf Hartman, RSD 21 Little Yarra Rd, Yarra Junction, Victoria, 3797.

Dear Rolf,

Numerous books on bush tucker have been published in recent years. Your local library is a good place to

start, and a good bookshop, such as 'The Bookshelf', 116 Bridge Road, Richmond, 3121, Victoria, should be able to help.

—Alan.

Norway to Timbuktu, the dry way

Hello,

I'm a 23 year old Norwegian. Some friends and I are making plans for an expedition through the Sahara using our own vehicle and are now collecting information about the area.

I read in the Lonely Planet publication *Africa on a Shoestring*, by Geoff Crowther (July 1986), that a great article about Timbuktu appeared in *Earth Garden* 41. Please send a copy so we can study it before we set off. Looking forward to it, yours sincerely,
Christian Schelver, Oslo, Norway.

What price to grow organically?

Dear *Earth Garden*

I started reading *Earth Garden* when it first came out in 1972, but alas, I have missed the last 60 or so issues; I'll catch up in time. Anyway, I was annoyed to read in EG 74 that the Government wishes organic growers to be registered and certified by one of the large organic organisations. Of course, this will involve a set fee. We do not live in a world of trust and it is only a matter of time before someone uses chemicals on their crops, either knowingly or not.

The soil may have been previously contaminated, or the grower may use chemicals as a last resort to stimulate or protect the crop, and hope to avoid detection. Growers of truly organic foods must be prepared to have random independent or Government testing to protect their own industry.

I am 34 years old and my wife and I have been struggling on and off in the big smoke for years, trying to save enough to buy our own piece of dirt, to have our vision of a profit-bearing organic market garden come true. But we don't want over-zealous officials telling us how to do it. We have no objections

to testing, but the Government (if that who's doing it) should bear the costs as an encouragement to all who wish to grow and sell organic produce. After all, the Government is also concerned for the health of the nation, isn't it? Yours sincerely,

Tony Morrison, Darra, Queensland.

Land in Queensland?

Dear *Earth Garden* readers,

It is such a joy each time *Earth Garden* arrives, as I really enjoy reading it. It's interesting to see how everyone is coping with today's pressures.

At present, there are several people in Bundaberg renting or leasing their farms. If anyone is interested, contact Mike Ashcroft of Bundaberg Real Estate, 200 Bourbon St, Bundaberg, Queensland or phone (071) 531235 or 529599 or fax (071) 522625.

In the Agnes Waters and Baffle Creek area there are still 40 acre blocks being sold for around \$25,000. If anyone is interested in land at Baffle Creek contact Don Creevey Real Estate in Bundaberg.

My husband, myself and our three sons bought 40 acres in the Pacific Paradise estate at Baffle Creek. We have planted pineapples and a few fruit trees and poured the concrete slab for the house. We had a fair sized dam bulldozed by a local at a reasonable rate.

We are going to move closer to the farm so we can have more time to make improvements.

We use organic fertilisers as does our next door neighbour, Joe, who is having success with Bowen mangoes, paw paws, passionfruit, citrus trees as well as his vegetables. Anyway, I hope I have been of help to anyone wishing to move into the country. Thank you,
Jean Hutchinson, Rockhampton, Queensland.

Dear *Earth Garden*,

I have been buying *Earth Garden* from the newsagent since issue 30 and now would like to subscribe.

I was growing citrus on about 10 acres until 12 years ago when the work became too much for me. I retained the

balance of my property (80 acres) in its original bushland state for the animals, birds and trees, and have continued to live on it and look after things as best I can. The land is on the Burnett River 15 km north of Gayndah, has a good bitumen road to the front gate, electricity, no phone, and a number of good buildings. I have good neighbours and the school bus runs past the front gate.

Should any *Earth Gardeners* and other true conservationists be in the area and care to visit, I would be pleased to see them. I have a large library and many magazines and collect stamps, cigarette cards (discontinued in 1940) and post cards.

I look forward to hearing from you. Your friend in protecting the environment. Sincerely,
Cyril Grimson, Post Office, Gayndah, Queensland, 4625.

Cinva ram details?

Dear *Earth Garden*,

I wish to construct a dwelling from mudbricks and am interested in the Cinva ram. This hand operated mudbrick press was outlined in *The Earth Garden Book* published in 1975. At the time the Australian agents were listed as Queensland Pastoral Supplies Pty Ltd, Box 768, GPO Brisbane, Queensland, 4000. Does anyone know if this device is still available?

I am also interested in any information on mudbricks regarding their relative durability and water resistance and on underground construction? I have ordered *The Earth Garden Building Book*. Yours in good faith,
Alan Hall, 6 East Street, East Fremantle, WA, 6158.

Taking *Earth Garden* to Ireland

Hi,

I'm returning to live in Ireland, but I must keep in touch with your magazine and so enclose a cheque for my overseas subscription. Thanks for a great read, best wishes.

Angela Gallinagh, Donegal, Republic of Ireland.

Handmade clothes deserve handmade buttons

by Keith H Burgess

Armidale, New South Wales.

MAKING handmade buttons for sale these days has to be a non profit activity if you consider the time it takes. The buttons I make would be too expensive to sell if I charged for labour.

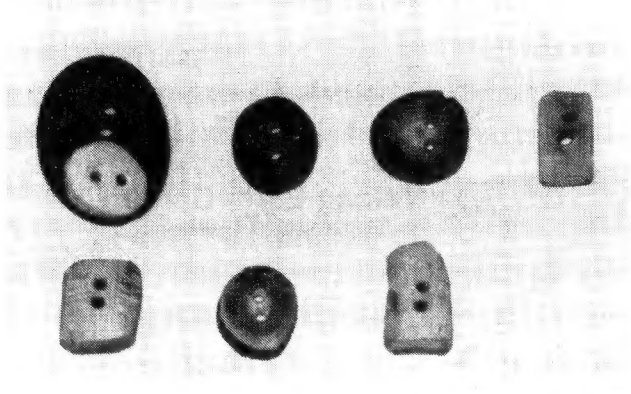
Button making used to be a cottage industry. Then along came the Industrial Revolution and someone invented a machine that could both make buttons and put a lot of poor families out of a job. But there is still a market for them, and I think nothing looks better on a handmade garment than handmade buttons.

The tools you'll need are a bench vice or other means to hold the raw material firmly without movement, a hand drill and bit, a countersink drill bit, a coping saw or hacksaw and different grades of sandpaper or similar.

Materials

First choose your material. Cattle horn generally is easy to come by, as are bone and wood. Deer antler may be more difficult to find. If you use wood, select a piece of dowel or seasoned tree branch of the diameter required. The size of the horn or antler is not as important because the buttons will get larger as you work your way towards the thicker end.

Secure your material in the bench vice. Cattle horn can be difficult to hold so try placing it as low as possible below the vice jaws, and then rotate the horn into a workable position. Packing around the horn with cloth or leather can help secure it.



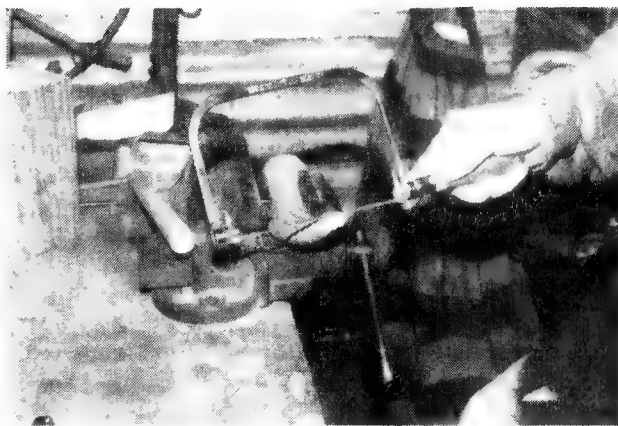
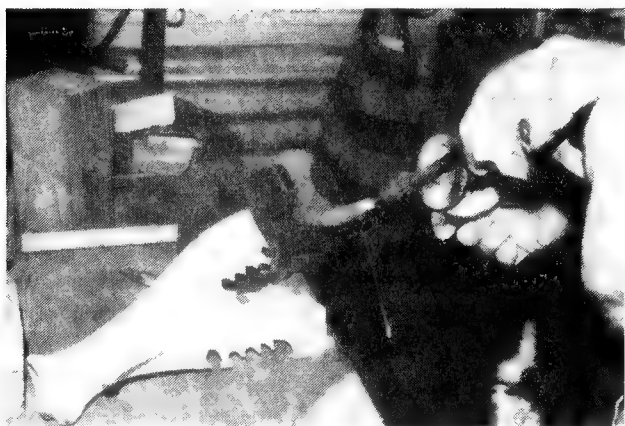
A selection of bone and horn buttons.



Horn and bone buttons on a hand made shirt, jacket and 18th Century style, hooded capote.*

Cut off the end of the horn or antler to give you the flat surface of the first button. Keep the sawn off end to use perhaps as a toggle or hat pin end. Mark the button holes with a pencil on the flat surface. (Marking the holes may not be necessary if you are going to sew the buttons on by hand.) Now drill the holes. You can drill to the depth of the drill bit if you are working with a straight piece of wood or antler, but if you are using curved horn, do not go too deep because you'll get too close to the outside of the horn.

Once the holes are drilled you can cut off the individual buttons. Do not cut them too thin. Wooden buttons especially are liable to break if not made thick enough. If you want a design on the button, do it to each before cutting. Simple 'V' file cuts can look effective.



Left: drilling the button holes in horn. See how the horn is clamped below the jaws of the vice. The shoulder blade on the bench has already been used for making bone buttons. On the right a coping saw is being used to cut the horn buttons. Note the wooden dowel ready to be drilled and cut.

Finishing

You may wish to leave the saw blade cuts on the surface of the button, but the edges should be rubbed smooth to stop them cutting into the button holes. The easiest way I have found to sandpaper buttons is to place the paper on a flat surface and rub the button against it. However, this can be long and tedious depending on the finish you require.

You might like to polish the surface of your horn buttons. This can be done in the traditional way using a piece of fleece and wet wood ash, or you can use steel wool. I drilled a hole in my bench top and inserted a wooden peg that fits in a button hole and enables me to hold the button relatively still when polishing.

Countersink holes

I suggest you countersink the holes on both sides of the button before polishing so that the sharp edges will not cut the thread. Simply turn the countersink bit in the button holes with your fingers. It doesn't require much effort or a drill.

Bone and flattened horn

Bone buttons are best cut out from shoulder blade using a coping saw. Mark out the buttons and button holes in pencil, drill the holes and then cut out the buttons. You can also use this method on flattened horn and for making differently shaped buttons.

To flatten horn, you must saw the hollow part from the solid and then cut it from end to end so that it can be opened. Heat the horn in boiling water or over a naked flame until it is soft and pliable. (Some other heat source may work but I have used only these two methods.) The horn must be clamped

quickly between two boards and held flat until cool. Hand-made clothes deserve handmade buttons, so try making them. I'm sure you'll agree that it's well worth the effort.

**Garments made by Carolyn Burgess of 'Wychwares', Wychwood, MSF 2007, Armidale, 2350.*

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PO Box 228, Strawberry Hills, NSW, 2012.

Design points in the kitchen

by John Archer

Brunswick Heads, New South Wales.

THE Australian kitchen, once relegated to an out-building because of the heat and the fumes, is now probably the most important room in the house. It is often the centre of family activity as well as a place for cooking, eating and washing up.

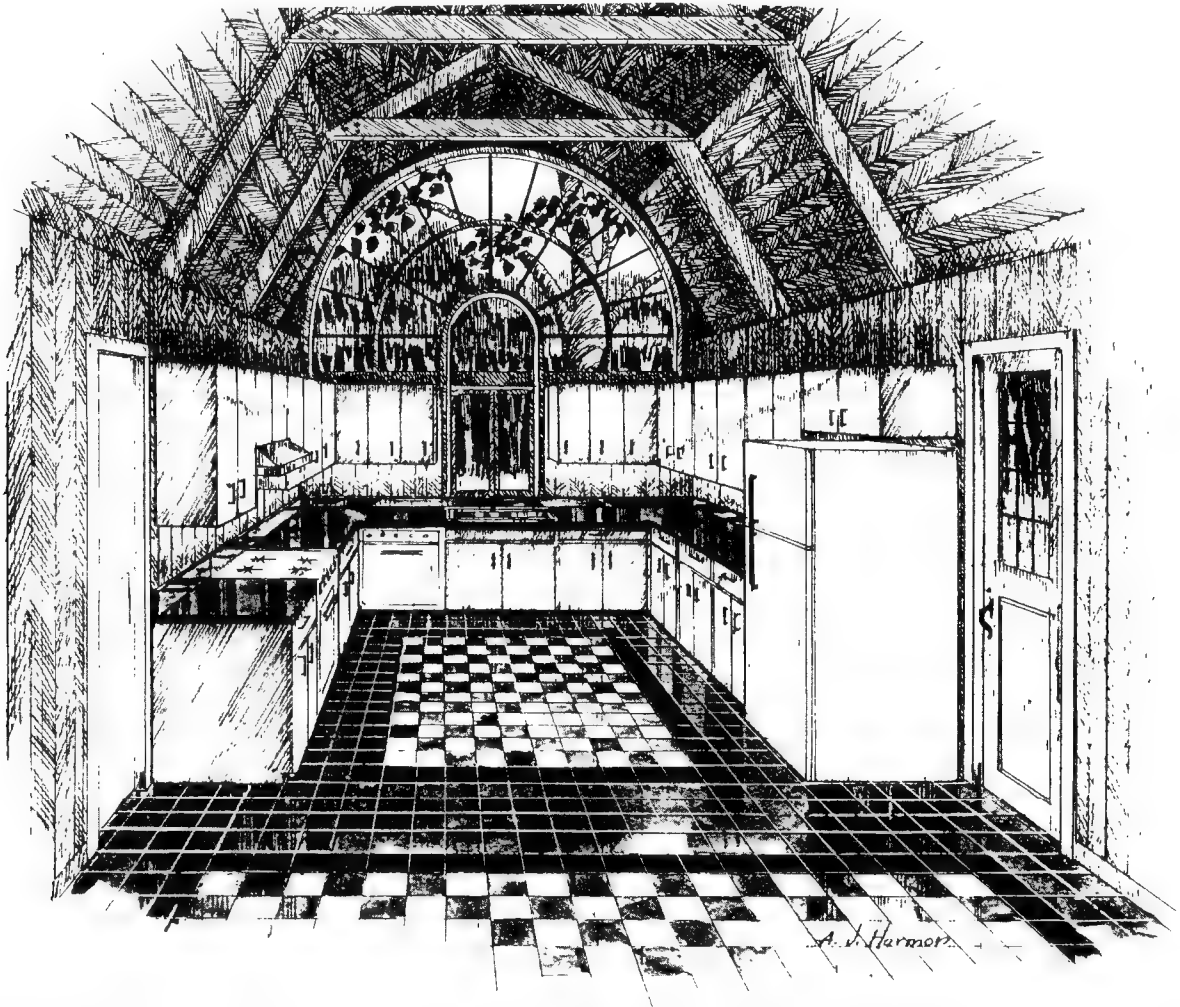
No wonder it's also the most expensive room in the home because it requires a variety of fittings, lighting and services. However it is not the amount of money spent, but the design and placement of the cabinets and appliances

which determines whether or not the kitchen will function properly.

A well conceived design can create a comfortable and pleasant workspace that is also easy to keep clean, functional, efficient, and suited to your house, your budget and your family style. That's a lot for one room to fulfil but it can be done.

Basic kitchen layout

Safety, efficiency, and economy of movement are the keys to good kitchen planning. One way to achieve this is to use the principle of the 'work triangle'. This is the relationship of the three main focal areas: the stove, the sink and the



Nothing can be placed in the work area of the U-shaped kitchen, so the standard designs can be dull. This kitchen is given life with an unusual ceiling and window. Illustration from 'Kitchens', by Peter Joyce and Penny Swift.

refrigerator. These are positioned on the points of an imaginary triangle which should be as compact and free from obstruction as possible.

Kitchens seem to have an infinite variety but in fact there are only four basic shapes: the single-wall (or linear) kitchen, the galley, the L-shaped and the U-shaped.

The single-wall kitchen

This is the only design which can't incorporate a work triangle because all the tasks are performed on one long counter. Linear kitchens are ideal for small areas or when they're at one end of a large open plan kitchen and living area.

The galley kitchen

If you like a relatively small kitchen then a corridor consisting of two parallel working areas can be a perfect solution. It is safest to position the stove on the same side as the sink to avoid the possibility of accidents as hot food is moved across the corridor.

The L-shaped kitchen

This design focuses on a corner but is ideally suited to the addition of an island bench top (which can be mobile on castors) or a large chopping block or a nearby dining table or breakfast area.

The U-shaped kitchen

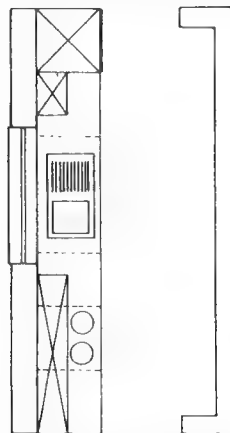
The U-shaped kitchen is probably the most efficient design of all. It is functional and compact with everything within easy reach.

Bench tops

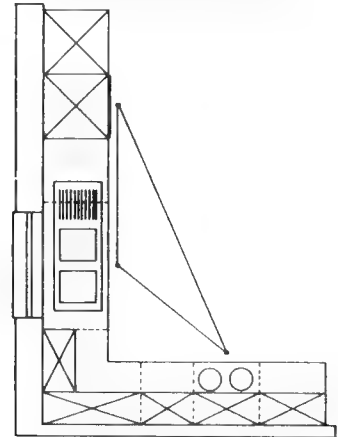
A variety of people may be working in the kitchen so it may be appropriate for you to have your bench tops at an average height of, say, 864 mm (34 inches). However, if you want to have them tailor-made then the recommended bench top height is 50 mm (two inches) below the bent elbow while you are standing.

Natural materials like wood, granite, slate and marble all make wonderful bench tops. Wood is probably

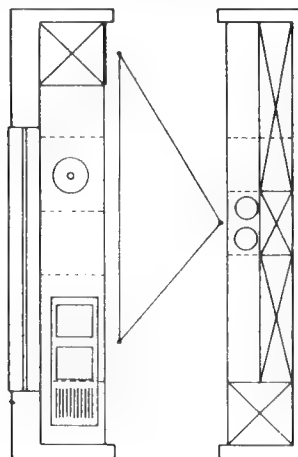
THE SINGLE-WALL KITCHEN



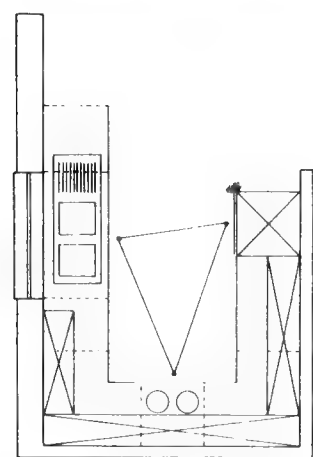
THE L-SHAPED KITCHEN



THE GALLEY KITCHEN



THE U-SHAPED KITCHEN



the most versatile and economical of these, but it is not difficult to recess a slab of marble into the bench top.

Glazed tiles are impervious to water, grease and stains. They're inexpensive, durable and easy to maintain. Pre-laminated bench tops can be made to order or bought ready-made in a variety of designs and colours. Laminate lasts about eight to ten years but is particularly susceptible to scorching and cutting.

Another possibility is Corian which is an artificial stone, solid and non-porous, and can be worked like wood. It is more heat resistant than conventional worktops and scratches or knife marks can be sanded away.

Cabinets

Cabinets are the mainstay of kitchen storage. The refrigerator, the sink and the stove each has its own storage requirements. However it's best to avoid highly individual-

ised, special-purpose cupboards in favour of simple multi-use storage areas.

Try to make the best use of available space. Look for areas which are standing idle — a narrow space down beside the fridge for instance — and see how these can best be put to use. Dead corners can contain space-saving carousal units while other gaps can hold foldaway racks for tea towels and other bits and pieces.

It's helpful to plan cabinets and shelves according to the various items that will be stored in them, and don't forget to plan a home for the rubbish bin and the compost bucket.

Lighting

Good natural lighting is an important asset. If the windows don't provide enough, install a skylight to illuminate any dark corners. For artificial lighting, simple, bright and direct illumination are best for kitchen tasks. This can be provided by a number of different fittings depending on the kitchen layout.

If the working areas have wall cupboards above them, then fluorescent tubes or tungsten strip-lights can be fitted on the underside so that they shine directly below without any side glare. Recessed down-lights are another option if your ceiling is suitable. Spotlights, on the other hand, tend to be hot, too bright and difficult to replace.

Ventilation

Double-hung windows are excellent for kitchens because they allow hot air to escape at the top while fresh air enters at the bottom but some additional ventilation, such as an extractor fan or a range hood, will also be necessary.

Extractor fans are best mounted on an outside wall above the stove or else in the ceiling, in which case expensive ducting will be necessary. Range hoods tend to remove odours and cooking vapours more efficiently than fans. Recirculating hoods filter the air through charcoal and metal

mesh and the filter needs to be cleaned periodically. Ducted hoods are best because they remove not only odours and steam but also heat, and replace it with fresh air from outside.

Safety

It is generally acknowledged that the kitchen is the most dangerous room in the house. Major hazards include the positioning of cookers opposite sinks or next to doors, wall cupboards hung too low, slippery or uneven floors, protruding handles and poor lighting.

If you are installing a cooking top, keep the burners

towards the rear of the bench and the dials well away from the edge too. Make sure too that electrical sockets and switches are well out of the range of accidental splashing or wet hands. Beware of multi-plug adaptors which can loosen in their sockets, overheat and burn out flexes.

Getting what you want

When you've made the hard decisions like which appliances to buy and worked out your budget, then you can start designing the kitchen around these elements. Spend as much time as you can looking at other peoples' kitchens. Keep a scrapbook of ideas and concepts to incorporate.

Make cardboard models and scale drawings on graph paper and go over and over it until you get it right. Careful planning, accurate measurements, patience and common-sense can help you towards the kitchen of your vision.

Helpful reading

Kitchens - Practical Designs For Everyday Living. Peter Joyce and Penny Swift. New Holland Publishers, London, 1988.

Kitchens. Roma Jay and Phyllis Oberman. W Foulsham and Co, Berkshire, UK, 1984.

Kitchens. A J Harmon. Grosset and Dunlap, New York, 1976.

How to Design and Remodel Kitchens. Anne Coolman (Editor).

Ortho books, San Francisco, 1982.



A tree trunk makes an excellent chopping block set into a floor made of polished wood rounds.

Infant permaculture

by Sally Price

Epping, New South Wales.

AFTER completing a two week permaculture design course in Queensland, I returned to my Sydney suburban backyard, lungs again filled with smog. When I left for Queensland I felt sure that I would come back with a restless urge to join the urban escapees, get a share title on an idyllic bit of coastal hinterland and retire into the doubtful utopia of self-sufficiency.

I was most surprised when this anticipated urge didn't happen. After completing an intensive two weeks of learning about soils, dam construction, orcharding and planning farms and backyards (to mention just part of it) I decided I really couldn't give up my city job and I couldn't see my husband trading in his computer for a shovel either.

Anyway, in a country where over ninety percent of the population live in cities and towns, Sydney is a pretty good place to start if you're serious about changing our consumptive lifestyle. Just think of all those suburban backyards covered in lawn, stunted roses and onion weed.

I had to battle with the fact that permaculture was hard to define for my many bewildered friends who would blink and say: "What's permaculture . . . a new hairstyle?"

I suppose if you had to sum it up you'd say it was designing for sustainability. It's about designing a living space, a backyard or farm the way Nature has designed forests, only centred around the needs of human beings. In other words, everything is integrated, every element performs at least three functions and, ideally, soils are improved and you import a minimum of stuff onto the site (including groceries). So you go for diversity and things that feed everything else. Put your chooks in your orchard, they'll eat pests and old fruit, manure the ground for you, keep down the weeds and you'll collect the eggs.

Getting started

Sounds great, but how do you start? Like forests, a fully grown permaculture takes a long time on a farm where you're establishing tree crops and animal forage systems. You have to be prepared not to sell out or the next person comes along, bulldozes the lot and plants a monoculture again. But like anything else the adage 'start small' makes good sense, and my backyard is certainly that — small.

Taking advantage of a lull in my freelance work and the enthusiasm inspired by the course, I approached the backyard.

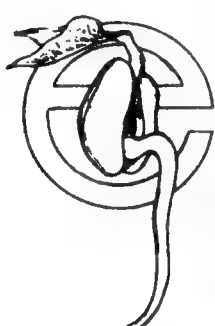
The first thing was to list what I had and what should be kept: pergola over a paved outdoor area, fern garden,

back door annual garden, shed, herb garden and three young deciduous trees. The outdoor area was definitely staying but I regretted having planted three wisterias over the pergola — they could have been kiwifruit. I wanted to keep the fern garden because it's attractive, small and not much else would grow there anyway. The wooden garden shed neatly obscures a southerly corner which is a good utility area for storing mulch materials, the wheelbarrow and those old pots you can never quite bring yourself to throw out.

It's easy to look at those little deciduous trees you've planted and think they'll never be *that* big. Our neighbours thought just that. Now, 20 years later, they've got magnificent trees, but that's all. There's no sun at all for a fruit tree or vegetable patch. Looking at our three, the metasequoia grows very slim and the Japanese maple can be pruned back in 40 years, but the silver elm will have to be relocated to another home in winter.

Siting the herbs

The best spot for a vegetable garden was along the

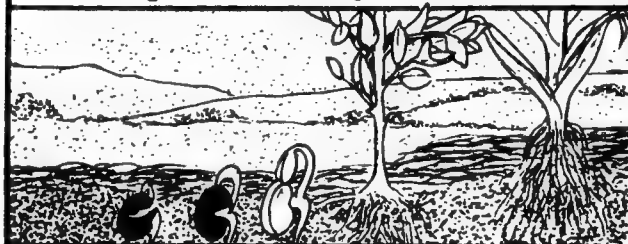


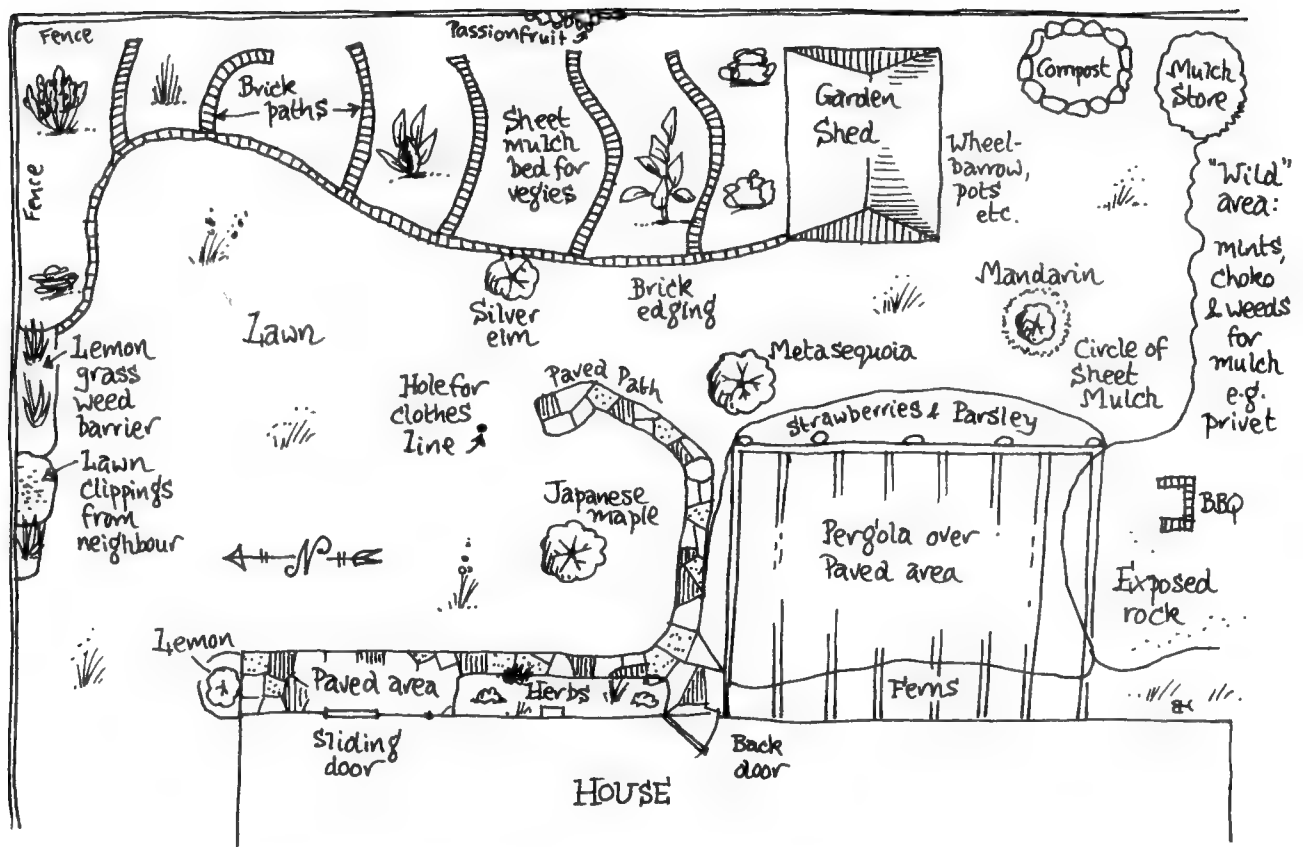
The Seed Savers' Network

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back fence, on top of the herb garden. I made the herb garden about five years ago and struggled with it for that long. It's a nice idea to have a traditional herb garden like those described in books, with little winding paths and a bay tree in the middle. What a novice herb gardener may not realise is that it's almost impossible to grow mint with oregano. Mint likes it moist and with full shade and oregano likes it hot and dry. With the garden facing the withering westerly sun, the oregano had a great time but the mint struggled on, aided by a couple of wet summers. A modest selection of culinary herbs requires so many different aspects, that I decided to dismantle the herb garden and find places in the garden where each herb would happily grow without being nursed.

I planted rosemary, thyme and oregano in a hot, sandy spot between two paved paths. Here they can't spread into huge bushes. The mints were planted behind the utility area where it's shady and the wandering Jew constantly invades from next door. They can fight it out. Above this mini jungle I planted a couple of choko vines to climb over the back fence.

The choko vine is a much maligned vegetable. It's one of the few plants of which every bit is edible. When the vine has died down in winter the roots can be dug up and cooked like potato or yam, but leave a few tubers to shoot the next spring. New shoots can be steamed as a green vegetable and new leaves can be stuffed like vine or cabbage leaves. Most people eat the fruit far too late. It should be picked

when not much bigger than an egg. It has more flavour then, doesn't need to be peeled and the seed is young and tender. It's pretty tasteless at the size we're used to, but even then the bit we throw away (the seed) is the most tasty.

I divided a huge clump of lemon grass into a couple of dozen plants and put them along the side fence as a weed barrier and nutrient trap at the bottom of the slope where it should catch any nutrients in the run off before it spills over onto the neighbour's drive. The lemon grass that doesn't get used for tea or cooking can be cut as mulch. The rest of the herbs found a spot in the back door annual garden which has also turned into a nursery bed for herb seed propagation.

Gathering materials

Next came the long task of collecting enough materials for my sheet-mulch or no-dig vegetable garden. Luckily a friend who keeps horses was slowly disappearing under piles of manure. She was more than happy to let me have two van loads. Her horses live on a gourmet diet of hand feeding, so there's not much of a problem with weed seeds. The manure was well rotted and light.

Neighbours are a wonderful source of mulch. For some reason which escapes me they don't like leaves on their gardens and are overjoyed to have someone come and take them away. Just put out the word and you'll get donations of composted and freshly raked leaves, grass clippings (not weed free but still useful) and prunings. A violent storm

brought down lots of trees and so I collected green leaves on small, brittle stalks from trees like liquid ambers and prunus.

The main monetary investment was in 200 bricks for paths and edging (\$120), eight bales of straw (\$44) and dolomite and gypsum. Poultry manure was cheap at \$1.50 a bag from a local farm and several people had their newspapers that were put out for recycling 'stolen'.

The existing herb garden was fairly weed free, so I put newspaper only over the mowed lawn where I was extending the garden. I started with a sprinkling of dolomite and poultry manure, then about ten sheets of wet newspaper, then the green leaves on stalks I had collected and broken up by hand. This was covered by about eight cm of horse manure and raked leaves plus another sprinkle of poultry manure and dolomite, then well watered.

At this stage I added the outside brick edging. As practical as they might be, I can't bear straight garden beds. My edge was made by bricks placed on their side in an 'S' shape. I hope to deter the lawn by laying the newspaper about 20 cm out from the edge of the garden and covering it with a thin layer of straw while I'm establishing a natural weed barrier of comfrey and lemon grass.

Then I covered the lot with 15 cm of straw, fluffed out from the bales. A few plants from the herb garden stayed (the bay tree, a couple of tomatoes, winter tarragon) and I just built up the mulch around these.

The right path

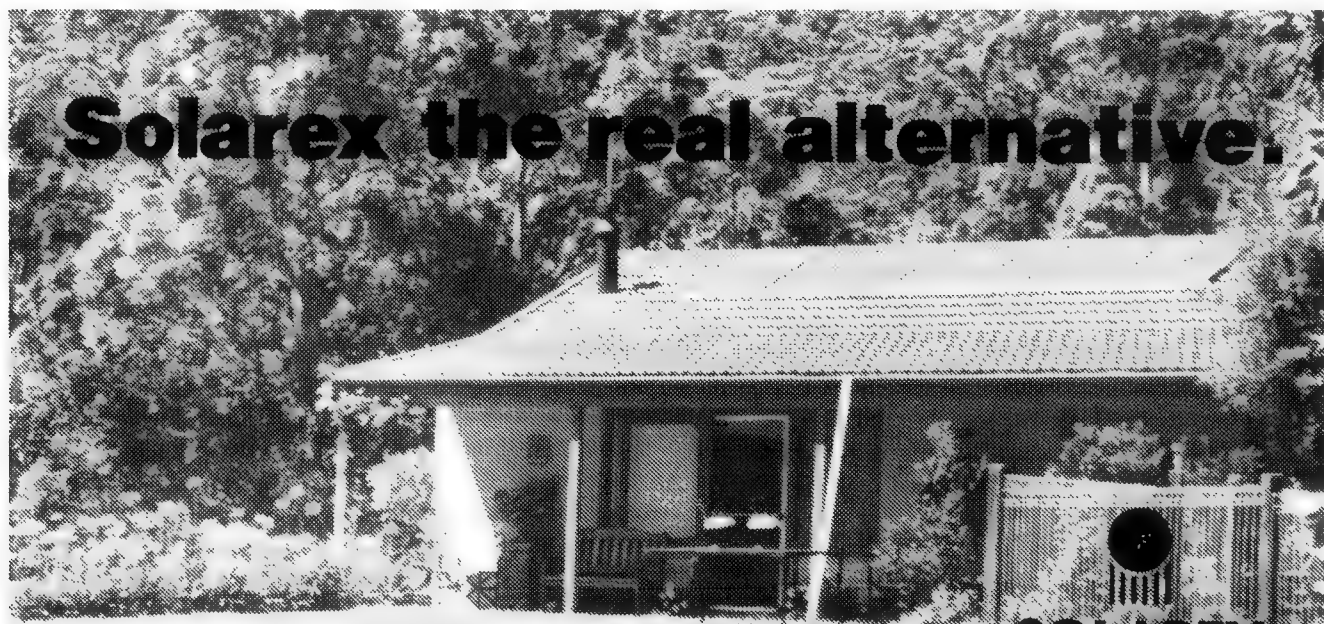
The whole thing was left for a couple of days to settle before I put in the paths. I decided to put my paths over the top of the manure layer. This way they can be curved and narrow (two bricks wide) and there's no problem with weed encroachment.

I just shoved aside the straw and threw down my bricks, curving the paths in contour with the slope. (One big failure with my herb garden was that I had some paths running down the slope — a disaster for soil erosion.)

I've planted a lemon tree at the back door in a rather forbidding bed of solid clay. I'm hoping to counteract this with a dose of gypsum (which breaks down clay soils) and a circle of sheet mulch around the top half of the root ball. The sheet mulch garden will become the source for regularly-used, shade-tolerant kitchen herbs like chives, parsley and garlic.

The small garden bed under the wisteria received a dose of manure and straw and is now home to a crop of strawberries. The earthworms invaded and the soil which wouldn't hold any water now remains damp after a couple of weeks of hot, dry weather.

So now my vegie garden is waiting for the new arrivals which are taking their time in the seed trays. Meanwhile a late crop of beans has just emerged from among the straw and the little bay tree has never looked healthier.



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Homemade cures for winter colds

by Cheryl Beasley

Wacol, Queensland.

COUGHs, colds and runny noses can be just as much a part of winter as cold winds and dark mornings. However, this year you can take care of them cheaply and safely with natural homemade products.

For centuries people have been curbing the effects of the common cold with natural products. Some of this ancient knowledge has been lost over the years while others such as the use of eucalyptus oil and hot lemon drinks have stood the test of time.

Today many of the preparations bought over the counter are based on natural medicines from the past. We are looking for alternatives to dosing up ourselves and our children with drugs that we really don't understand. Do you really know the effects cough mixtures and tablets have on your children's internal organs?

Many children are allergic to certain cough and cold preparations. Maybe you don't want to take the risk of finding out if your child is one of them. Here are some surefire ways to make the suffering of having a cold a lot easier to bear.

Four cough mixtures

- 1 knob of garlic
- 2 cups of hot water
- 3/4 cup honey
- 3/4 cup white vinegar
- 1/2 cinnamon stick.

Place the peeled garlic into water and bring to the boil. Boil rapidly until the liquid is reduced by half. Strain and then add the remaining ingredients and simmer for ten minutes.

Remove the cinnamon stick and store in a jar or bottle. Take by the teaspoonful when required. This mixture should mellow as time goes on. Remember when cough mixtures were horrible to take?

- 1/2 cup lemon juice
- 1/2 cup glycerine
- 1/2 cup honey

Combine all the ingredients in a jar and shake vigorously. Give one teaspoonful when required. This cough mixture can be kept in the refrigerator for a week.



- 2 tablespoons honey
- 1 tablespoon olive oil
- juice of one lemon
- 1/2 teaspoon cinnamon
- 1 egg.

Place all the ingredients into a jar, replace the lid and shake well until all the ingredients are mixed thoroughly.

Keep this in the fridge and give one teaspoon every two or three hours.

- one handful of fresh thyme leaves
- two cups boiling water.

Boil the thyme in the water until the liquid is reduced by half, strain and add a tablespoon of honey. Cool and take a large spoonful every hour.

Sore throat remedies

- Place a teaspoon of salt into a glass of very warm water and gargle regularly.
- Gargle with a mixture of the juice of one lemon, a tablespoon of honey and 1/4 cup of very warm water.
- Strong sage tea can be gargled before bed to ease a sore throat. Add a tablespoon of honey if preferred.
- A few drops of eucalyptus oil in a glass of warm water makes a soothing gargle.

Steam treatments

Colds often give you a stuffy head. Clear this congestion with the following steam treatments. Place the ingredients into a bowl of boiled water and place your face and a towel over the bowl to form a tent. Breathe normally for approximately five minutes. If you feel any discomfort stop immediately.

For children, place a bowl of hot water in their bedroom when they are sleeping and let them breathe in the steam while asleep.

One teaspoon of eucalyptus oil added to a bowl of

boiling hot water will clear the head and fight germs.

Eucalyptus oil can be added to the bath for a relaxing and head-clearing experience. Eucalyptus oil is highly antiseptic and can kill germs in the mucous membranes of the nose, throat and bronchial tubes.

A handful of fresh horseradish, chopped and added to a bowl of boiling water will help eliminate excess mucus. Rosemary can also be added to steam treatments to help eliminate congestion.

Soothing drinks

Liquids are vital when you have a cold. Try drinking a glass of liquid every two hours. Children dehydrate quickly and they will often get bored just drinking water. Give them a few warm drinks during the day and one an hour before bed.

Hot lemon drinks are the most popular for colds. They soothe the throat and clear the head. Simply juice a lemon, boil a cup of water and mix. This basic recipe can be made more interesting by adding a tablespoon of honey, a dash of cinnamon or, for adults, a tablespoon of brandy. If drinks are all that your child will take it's a good idea to add a tablespoon of glycerine too.

Bake two or three apples in the oven then cut and place in a bowl. Over the apples pour half a litre of boiling water. Add two cloves and let this steep for three hours. Strain and sweeten it with honey. This beverage quenches a thirst.

Sage tea helps the body rid itself of impurities by assisting in perspiration. It also revitalises the tissues.

Rosemary tea will help cure a headache and it is good for relieving congestion when you have a bad cold.

Horseradish tea will relieve congestion. All the teas can be sweetened with honey and you can add a tablespoon or two of lemon juice to them.

Five quick cold tips

1. Eucalyptus oil has many uses. One is to dab a drop onto your pillow at night or on your tongue. Rubbing it on your chest will also help congestion and let you breathe clearly at night. Dab a drop onto a hankie or collar for children to take to school.

2. An onion, cut in half and placed in the sick room is said to absorb odours and is an antiseptic.

3. Air out the house thoroughly but don't let drafts near sick people. Cleanliness is essential when you have a cold so always wash hands and use only your own towel, washer and glass.

4. Some people believe the colour red can help with colds. Surround yourself with red, red sheets or a red scarf. It might just work!

5. Have plenty of rest and avoid cold temperatures and tiring yourself out. Be sensible and if your cold gets progressively worse or you notice other symptoms, see your doctor.

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A chook van, with en suite . . .

by Bob Rich

Moora-Moora Co-operative, Victoria.

RUTH had built the temporary chook shed eight years ago, as a practice job before starting on the house. All you could say was that it wasn't as badly done as the run Sam had enclosed and roofed with wire mesh.

"Lucky the foxes around here are polite," said Sam. "A rude one would walk through the wall instead of knocking at the door."

"Yes, or go through your wire mesh."

"Or that. Anyway, I'm going to the tip, I'll see if I get an inspiration during the drive."

"Righto, but don't bring back more rubbish than you take!"

Off Sam went, with the ute loaded with rusty, twisted roofing iron, lacework-like plastic, and other stuff even he couldn't use. Time passed, hour after hour, and he didn't return. Ruth was getting anxious — this wasn't like him at all. Finally, just before dark, she heard the noise of car engines. Yes, plural.

There came the old ute, towing a big, battered Mazda van. A station wagon followed in its dust cloud. The convoy turned in at the gate, up the winding driveway, and stopped in front of the house.

Sam jumped out of the ute, his expression a mixture of triumph and apprehension. "Ruth, look at this beauty!"

"I am looking. Where have you been?"

"Hang on. Ruth, this is Jim and Jack. They are in charge of the tip."

"The story had better be good," said Ruth.

"It is. Out there, behind the ute, you behold the chooks' new home!"

"You're kidding . . . well, why not? . . . is it fixable?"

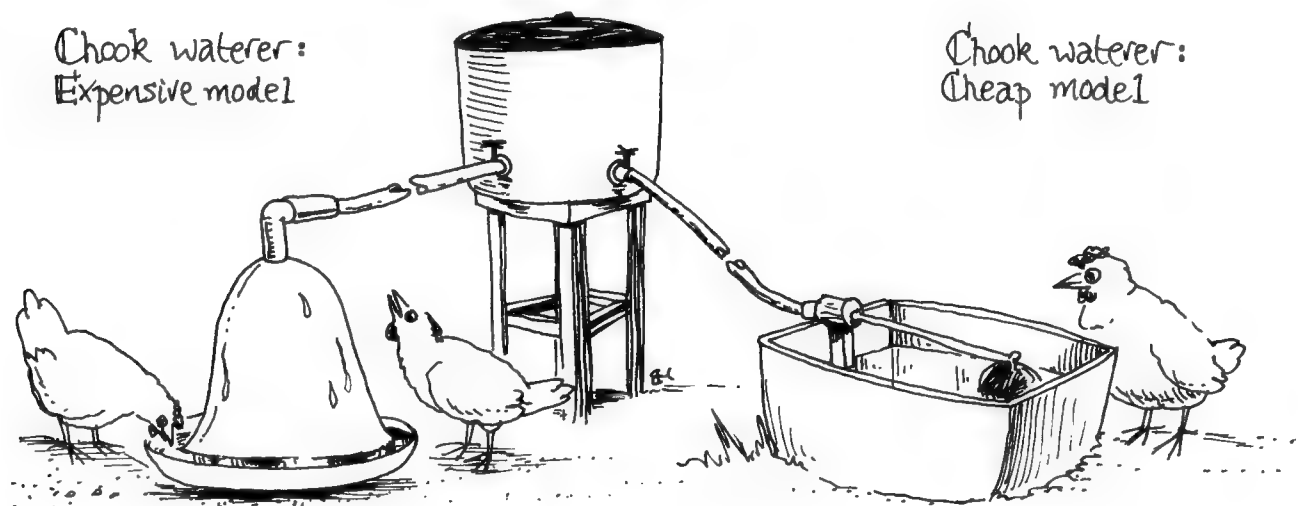
"No, engine is out of it, bodywork rusty, tyres bald, windscreen cracked, but Mr Rooster and wives don't mind. Anyway, that's why I took so long to come home. Had to wait till these two knocked off. Jack had to come to take Jim back. I needed Jim to steer the van. Also, I promised them a few goodies in exchange for their time."

"Of course. How about a hind-quarter of home-killed lamb and a bag of organic vegies each?"

Sam went to the dugout to get the meat — his home-built, solar powered freezer was behind the house because of the lower air temperature. Ruth went to the pantry to get the vegies.

The next week was a busy one for Sam. He put a wire mesh fence around an area which would make a good addition to the vegie garden in due course. This time, with eight years' experience behind him, he did a proper job. The van was positioned so that its tailgate opened into the enclosure. There were a few challenges in enclosing the gaps around the van, but nothing an ingenious person like Sam couldn't cope with.

Finally, the great day came. Sam put in some old wooden crates as nesting boxes, stood an old tube steel



contraption in the corner for a roost, installed the self-feeder for the food, put a hose through a window and attached the automatic water supply, and liberally coated every horizontal surface with sawdust from the cabinetmaker's in town. At night, he and Ruth went to the old chook shed. One by one, each chook was grabbed by the legs as it sat on the roost, and stuffed into a feed bag. They were released into their new, clean, spacious quarters in the van.

After three days, when the chooks had accepted their new 'home', Sam opened the tailgate. Plucky, the top hen, came out first, investigated the new enclosure, and showed her approval by starting to scratch around. That evening, the lot were back in the van and sitting on the roost before Ruth came to put them away.

The old shed was cleaned out, yielding wonderful compost material. Sam reinforced the old enclosure, with rabbits and wombats in mind, and covered the ground in a thick layer of half-rotted hay. The following spring this made a great bed for potatoes as a first crop. As for the shed — that was filled with firewood.

There was just one problem. From the day of the move onwards, the water feeder kept leaking. It was a shop-bought device, one of Sam's few extravagances. The hose attached to a plastic tube which screwed into a spring-loaded valve inside a sleeve. The sleeve was attached to a plastic inverted bell shape with a rim. The thing could be adjusted so that water would flow into the rim as soon as its total weight fell below a certain point. Weight reduction was of

course achieved by the chooks drinking the water.

The trouble was, that over time the genuine plastic had become brittle, and when Sam dismantled and reassembled the device, the threaded plastic tube had split, but Sam was not about to buy a new model for \$54.95. Sam tried silicone sealant to stop the leak. He tried Araldite. He tried binding it with string. He tried replacing it with a bit of polypipe softened with hot water. Nothing worked.

One day, Ruth heard a knock at the door. "Hello Ruth, remember me?"

"Phillip Lockhart! Come in, I'll get Sam." Years ago, Phillip and Ruth had done a mudbrick building course at Holmesglen College of TAFE, and had stayed friends.

Sam explained his chook watering problem to Phillip. By the time he finished, they were into their second cuppa, and the plate of home baked biscuits was empty.

"Tell you what, mate, I may have a solution for you. I've got a cousin in Tasmania. His chooks drink out of an old toilet cistern. He's got the bottom outlet blocked off and the lid removed. As the chooks drink out of it, they lower the water level. The float sinks, and presto! the cistern fills up."

"Brilliant! On the strength of that, you're staying for lunch?"

"Thanks Ruth . . . Hey, where's Sam off to?"

"Need you ask? He's bound to have an old, working toilet cistern up there among the junk. I guess the chook van is about to acquire an en suite."

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Season

by

Season

Earth Garden's regular organic gardening column,
written by Jackie French

Coping with drought, perennial vegie gardens, home-made toothpaste, storing fruit, preventing spring pests, herbs for colds and 'flu, winter harvests and more . . .



Dry, cold and windy

As I write this, the last of the autumn leaves are blowing about the garden. The leaves fell early this year, partly because a lot of the trees are drought stressed, but also because it's colder. We haven't had decent rain here since last September, just like many areas of Australia. But it's not just the lack of water that's going to be a problem — a dry year means colder winters, more frosts, and usually more wind.

Perennials and coping with drought

Perennials have good defences against drought. The longer a plant lives, the bigger its root system becomes and so it's more able to scavenge moisture. Short-lived lettuces need to be watered every day or two in hot weather or they turn bitter, but perennial salad crops like dandelions or salad burnet will keep producing despite hardships or neglect.

A perennial garden is also easy to work. You can feed from your garden without massive seasonal replantings. In most cases, all you need do is mulch once or twice a year and pick as you need to. There's less watering to be done and you only need to feed the plants enough to replace what you've taken — unlike annual crops which always need enough food to produce a whole new plant.

Asparagus. The first spring crop. Plant the crowns now, or seeds in spring. Pick asparagus when the stalks are as thick as your finger. Once it's established, asparagus is incredibly drought hardy.

Artichokes. These are a thistle, and just as prolific. Once they start, they just keep increasing. Pick the young flower heads as young as you can bear to.

Jerusalem artichokes. Plant a few of these tubers and you'll always have them. Not even drought, flood or bushfire will get rid of Jerusalem artichokes. They are best baked in their skins, but can also be steamed, or puréed with a little hot milk or in soup.

Arrowroot. You can use arrowroot instead of potatoes and, whereas potatoes need a fair amount of moisture for a good

crop, arrowroot will increase year by year and tolerate mild frosts. Dig up the roots as you want them. They can be baked, or you can grate them and wash out the arrowroot flour.

Bush basil. This is a frost sensitive perennial. The small and neat, bright green bush with tiny leaves has a strong basil scent. It needs much less water than annual basil.

Salad burnet. You can use the ferny, cucumber-tasting leaves in salads or instead of lettuce in sandwiches. You'll find that most nurseries sell salad burnet in the 'herb' section.

Chives. Use chives instead of onions.

Garlic chives. You can use garlic chives instead of onions or garlic. I use at least two handfuls every day and chop them into salads, stews, stuffings, rice, over potatoes or into soups.

Water cress. This is possibly not the best drought crop, unless you have a sludgy waterhole that's no good for anything else till it rains. Land cress, however, needs less water.

Good King Henry. The leaves of Good King Henry are pointed, small and mild. We ate it as a salad green through most of the last drought.

Lemon balm. You can grow this in the shade to produce a milder crop. Use the tender young leaves in salads or sandwiches instead of lettuce.

Egyptian mint. This is a bland, large leaved mint that can be chopped finely for tabouli. It is prolific even in a dry spot, unlike most mints, which usually need moist soil.

Tamarilloes. Otherwise known as tree tomatoes, tamarilloes will tolerate moderate frosts of, say, down to -5°C. You can eat them whole or slice them into salads. They don't taste like tomato but at least they're red.

Parsley. This is a deep rooted plant, although not a perennial. In dry weather, tabouli is a good alternative to green

salad. Turnip rooted parsley has a large, tasty root and is even more drought hardy than the other varieties.

Sorrel. I grow our sorrel in the shade of a persimmon tree. Grown in the shade, it produces milder tasting leaves which are good added to a green salad, but it's too bitter on its own.

Horseradish. The roots and leaves of horseradish are edible. The leaves are particularly hot though, and should be used sparingly. Wrap them around something bland such as rice and steam them.

Rhubarb. If you keep your rhubarb mulched for the first year it'll be indestructible, unless you pick too much without feeding and mulching enough to compensate. Look for winter varieties that'll feed you in cold weather too. Rhubarb is invaluable during the 'hungry gap' in spring, when not much else is producing.

Sweet potato. Plant a sweet potato root, let it spread and only dig up what you need. It's suitable only for almost frost free areas.

Five year beans. These come up every year and the roots just get bigger. They are climbing beans with bright red flowers that don't set in very hot weather. They're a reliable cropper all through late summer and autumn, and can provide a good spring crop, too. (I can send some five year bean seeds to any interested readers if you send a stamped self addressed envelope. I'll probably run out after the first ten or so envelopes, though. It depends how many of the last crop we eat, and how many are left to dry on the vines.)

Choko. Plant a sprouting choko and it'll climb all over the place. Chokoes die down in frost and they won't crop if you have a short growing season (we're just on the borderline). You can eat the shoots as well.

Dandelions. The young spring leaves of the dandelion are sweetest and can be eaten in a salad. Older leaves need to be blanched in boiling water for a few minutes, or you can put a box over the plant for a week or so till the leaves turn pale. This will make them much sweeter. The modern varieties of dandelion are incredibly prolific.

Any tree or berry. Try young shredded lemon leaves or very young grape leaves in salads. You can stuff grape leaves and even young mulberry leaves and steam them. Avocado can be added to cakes and stuffings for richness and protein, or used instead of butter. A couple of peach leaves can be used instead of vanilla or almond essence in puddings and custards. Grind up dry nuts for a nut flour that can be used as a substitute for ordinary flour. (Use a quarter of the amount specified for ordinary flour in the recipe.)

More drought strategies

Bedding things down

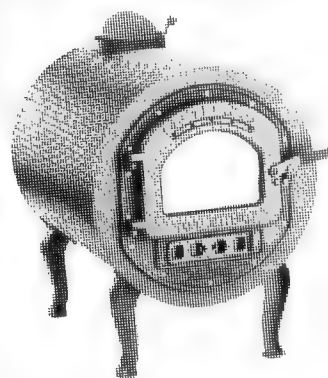
It's going to be cold, dry and windy, so add all the mulch to the garden that you can to keep in what moisture there is. Most plants can stand up to a bit of wind, but any movement of the plant can destroy small feeder roots. The plant needs as many roots as possible to get whatever moisture there is, so stake new plants to protect them from

wind damage. Extra care is needed around your plants in a drought because there is no rain to help bed them in and close up the gaps in the soil, as happens in normal conditions.

Don't burn

A forester I talked to recently seemed puzzled why more forest trees were dying this year than in previous, comparable droughts. I suspect that it's something to do with forestry 'management' based on regular 'cool' burns. ('Cool' burns in our area this year sent roman candle type flames into the sky.)

Burning reduces the amount of ground litter in the forest, or your paddock, and the amount of organic matter in the top layer of the soil. Together these will decrease the soil's ability to hold moisture. Continued burning only leads to greater, long term moisture loss. I noticed during the last drought here that regularly burnt paddocks and bush did not



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survive as well as the areas that had been left alone.

Things will be worse this year, if it continues dry, because without rain the burnt areas are more likely to produce weeds than renewed grass. And it's going to be tough enough on native animals and birds, without their food and shelter being reduced even more.

Tree planting

During a drought is not the best time to plant trees but, if you do, you'll be surprised at the number that will survive. They'll be better equipped to catch what water there is, if you don't entirely fill up the hole you plant them in. Holes around trees seem to fill up naturally with grass and leaf debris after a few years, so don't worry that you may be making them vulnerable for future root rots.

I planted 20 olives on a dry hillside at the beginning of the '78 to '83 drought, all in small depressions with a roughly-matted channel leading down to them. Only one didn't survive and that was eaten by rabbits. (Hungry wildlife is another drought problem. I managed to save the young olives by wrapping their bases in alfoil — it must have given the rabbits toothache.)

Use a plastic shelter bag — or 'Gro tube', if you can afford it — to help stop the wind drying out the plants. Also, you'll find that moisture will condense inside the shelters during the day. Out of 50 pines planted in plastic shelters during the previous drought, 47 survived with no watering at all after the initial planting. Only one of the 20 not in shelters was still alive four years later. You can use old plastic bags, or even a shelter of old carpet or last decade's jeans will help.

Seasonal jobs

Cleaning up the garden

At this time of year, pests are sheltering before they start to breed in spring. Harlequin beetles, slugs and snails

Paste Newspaper over boxes of fruit to keep out pests...



Leave a small container of port near boxes of apples to trap codling moth...

A cup of port with a thin film of oil

like to hide in slow compost heaps. A good compost heap should be hot enough to kill pests. If it isn't, a good dose of urine or another form of nitrogen should get it going.

Fruit fly, though not infecting your fruit now, may be sheltering in fallen fruit or in poor 'compost' heaps (as above). Pick up all fallen fruit and use it, feed it to the chooks or leave it in water with a bit of oil on top for at least three weeks.

Thrips spend the winter on flowering weeds. When the weeds die off in spring, the thrips will move to your plants. Get rid of the weeds, or, better still, plant flowering ground covers around trees and along garden paths. These should tempt the thrips away from your fruit trees (thrips prefer to be close to the ground) and attract the early spring predators. Codlin moth will be cocooned in rough bits of bark, on wooden ladders, fences or old fruit boxes. Squash the cocoons as you find them.

Plant flowering ground covers like lawn thyme, yarrow or chamomile in paths through the garden & under trees to lure thrips & attract predators....



Other winter jobs

Planting onions

Onions will grow at any time of the year, but you get bigger bulbs if you plant in winter. Onion seedlings are small and grow slowly so they can get choked by weeds. A month before planting, lay clear plastic on the bare ground to create some warmth and moisture that will encourage the weed seeds to germinate. You can simply rake away the young weed shoots before the onions go in. Otherwise mulch like mad. A mulch of oak leaves will suppress weed seed germination, but won't affect the onion seedlings.

Don't feed onions too much or you'll get leaf but no onion. If the soil is poor, scatter blood and bone or old hen manure onto a low nitrogen mulch like sawdust, old leaves or hay.

Winter storage

Don't store carrots near fruit because the ethylene released from the fruit will turn the carrot skin bitter. And don't store spuds with fruit either, especially apples, or they'll sprout earlier. Your fruit will keep longer if you wrap it in newspaper or fill the fruit box with clean dry sand.

Root vegetables need some humidity or they'll wither (now you know why shop-bought carrots look lush, yet yours start to shrivel). Keep them in plastic bags with air holes or in damp sand. Tomatoes ripen best in crumpled newspaper, and the newspaper will also absorb the juice from any that start to rot, so the rest won't be affected.

Beware of codlin moth breeding in your apple store — more apples are infected with codlin moth in storage than they are on the tree. (Friends bought a case of organic apples recently and found that every apple had codlin moth. There were no moths in the case when it left the farm, so it must have been infected during storage at the wholesaler.)

Codlin moths love to live around apple storage sheds, kitchens and laundries, as well as trees. Small, open jars of sweet port (or molasses and water, if you have an alcoholic cat) kept near stored apples make good moth traps. A few sheets of newspaper pasted over the apple boxes will also stop codlin moth and fruit fly getting in.

Winter harvests

Rose hip vinegar

Rose hips are high in vitamin C but, because cooking destroys it, I use this recipe for my vinegar.

Roughly chop as many deep red rose hips as you can, withered or otherwise. Just cover them with cider vinegar and sweeten with honey to taste, if the hips are not sweet enough. Leave for at least three weeks before using. Take a teaspoon a day in hot water, preferably before breakfast.

Cold or 'flu reliever

Mix this to keep on hand for when it's needed. Collect a cup of elder flowers (before they finish for the

Lay clear plastic on the soil
before planting onions...



...rake up the
germinating weeds

season). Add a cup of mint leaves and half a cup of yarrow. Dry these in a darkish place, then sprinkle with a pinch a cayenne pepper, a little powdered cloves and powdered ginger, or some grated ginger root. Dried chamomile flowers, lemon balm leaves, dried garlic and dried lavender flowers can also be added. (You may prefer to take the garlic separately and not ruin a pleasant drink.) If you don't have all the ingredients, just use what you have.

When you need it, pour a cup of boiling water over a tablespoon of the herbs, then cover at once with a saucer so the steam isn't lost. Drink when tepid. It can be heated again but don't boil it. Take it four times a day.

Parsnip and potato purée

This is good even if you don't like parsnips. Cook equal amounts of potatoes and parsnip — either steamed or boiled. Mash together with butter or margarine, then, over a light heat, stir in enough hot milk to make the mixture nicely moist. (The more you stir, the more milk will be absorbed to make the mixture richer and lighter.) Add a dash of black pepper, nutmeg and chopped parsley or chives.

Pack rose hips
in vinegar for
a high vitamin
winter drink...



Homemade toothpaste

Blend half a cup of orris root with a quarter of a cup of quince and peppermint gel. Store in an airtight container in a cool cupboard.

Orris root is the dried rhizome of the Florentine iris, but you can use any variety of iris. They won't be as strongly perfumed (orris root has a pervasive violet scent that lasts for years) but will still do a good job on your teeth.

Dig up the root in winter, clean it well, slice and then dry it in the oven till it's crisp. Pound it to a powder or put in the blender. (If it won't powder then it isn't dry enough, so stick it back in the oven.)

Quince and peppermint gel is made by simmering three cups of quince seeds and half a cup of chopped peppermint leaves in six cups of water for 20 minutes. Stir the mixture often or it will stick, then strain it and add to the orris root. Orris root can be used as toothpaste by itself, but it's bitter, or you can use charcoal, if the colour doesn't put you off.

An old fashioned recipe for toothpaste is dried, crumbled sage leaves — just dip your toothbrush into them. It is both slightly abrasive and fragrant and excellent for the gums. The orris and quince recipe, though, makes something that actually looks like toothpaste.

Questions and Answers

If you're bugged by household pests, can't remember a herbal remedy, want to know if that backyard shrub is useful, or have a plant problem, send a stamped self addressed envelope to Jackie French at RMB Araluen Valley, NSW, 2622.

—Last resort fruit fly control, gardening with pine trees, russet mites and leaf miners—

Fruit fly problems

Dear Jackie,

My problem is fruit fly — little white maggots in things! I've tried many unsuccessful methods to keep these pests away from my two large plum trees. I used banana peel and water baits in bottles hanging from the trees; tins of mothballs; kerosene and creosote and even tried to be quick enough to pick up the fruit that fell every day. To my dismay, we didn't get to eat one plum from a bumper crop (four large garbage bags full, to be used three months later for compost matter).

Fruit fly then went on to destroy all my tomatoes except the Tiny Tims, and the capsicum also looks in a bad way. My questions are:

- 1. Will the frost and cold weather get rid of the fruit fly (there aren't any in the compost heap, yet)?*
- 2. What precautions can I take to make sure we get some plums and tomatoes to eat next year?*

Your advice will be appreciated.

Rhonda Corima, Werrington County, New South Wales.

Dear Rhonda,

First try to work out where the fruit fly are coming from, after all, you may be inheriting a neighbour's problem. If so, it may be worth offering to pick their fruit or rotting tomatoes to save yours. A few chooks or a couple of geese imported into your yard will save you a lot of work by eating the fallen fruit.

Baits

Fruit juice with a pinch of yeast is a more efficient bait than banana peel, but will need replacing once it stops bubbling. But it sounds like you have so many fruit flies that even if you catch most of them, there'll still be enough left to infest your plums.

You can buy a non organic splash-on bait, but as it's splashed on and not sprayed, the harmful effects should be minimal. Or you can make your own by mixing 50 g of sugar and 10 ml concentrated pyrethrum in one litre of water. Pyrethrum breaks down on contact with light, so you'll have to reapply it every few days (one reason to use the commercial stuff). Splash the bait on the trunk and branches, because spraying will dilute the mixture too much for it to be effective. Start once the plums — or your earliest fruit — get to be nearly full size, but haven't started to colour.

Sour milk

I've been experimenting by spraying full strength,

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very sour milk on to the fruit once a week starting when it's half ripe. I have found it partially effective, but it's too early to tell. I'd be very grateful if you could try this, and let me know the results. (If anyone else is prepared to try it too, could they please let me know?)

Cold and fruit fly

Fruit fly die in cold winters (I don't know if your winter will be cold enough, Rhonda) but frost isn't enough because they shelter inside fallen fruit and poor 'compost' heaps (see *Season by Season*, this issue). If you get frosts then your winters are probably cold enough to stop them breeding at least — but some may still be sheltering during winter, so remain vigilant in getting rid of old, fallen fruit.

Use fruit fly infected fruit

Don't throw away the plums that are affected by fruit fly, instead make jam or plum sauce, or even stew them. Fruit flies have a highly nutritious diet and are edible — and you can't see them in jams and sauces. They don't make it go off and any fruit fly turned into jam certainly won't be breeding. If you're worried about people's reactions, don't tell them.

You can protect tomatoes by picking them green and ripening them in newspaper indoors, preferably under fine mesh or in brown paper bags or in more crumpled newspaper so that passing fruit fly can't get at them. (Fruit fly will breed indoors, too, but don't confuse them with the larger ferment flies that hover round fruit bowls, they only infect fruit that is broken or going bad.)

Fruit fly guards for capsicum can be made by stretching two layers of pantyhose stretched over wire or an old coat hanger and wrapped over the capsicum while it ripens. With luck, though, the splash-on bait will be effective enough to avoid going to these lengths.

Do try to find out where your fruit flies are coming from, though. They can travel five km, but are more likely to be breeding somewhere close. The only real cure will be to cull them at their source.

Pine needle poison?

Dear Jackie,

Thank you for offering to answer questions via Earth Garden. Not much seems to grow on my land so I wonder if, as I have been told, pine trees poison the soil. I have plenty of cones, needles, bark and timber but I'm hesitant to



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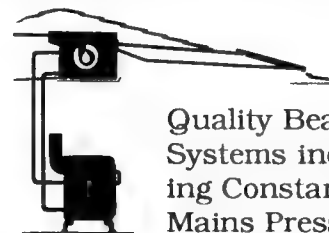
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compost. Adding dolomite to the soil seems to have helped a little.

I hope that pines do not poison, but merely make the clay soil more acid, and that dolomite will eventually win the battle. I have plenty of wood ash from the pine cones. I can't find anything in any publication about the subject. What do you think?

Les Williams, Slack's Creek, Queensland.

Dear Les,

You have a problem. There are several things you can do to improve the growing conditions, but there's no way I know to totally eliminate the effect of the pine trees.

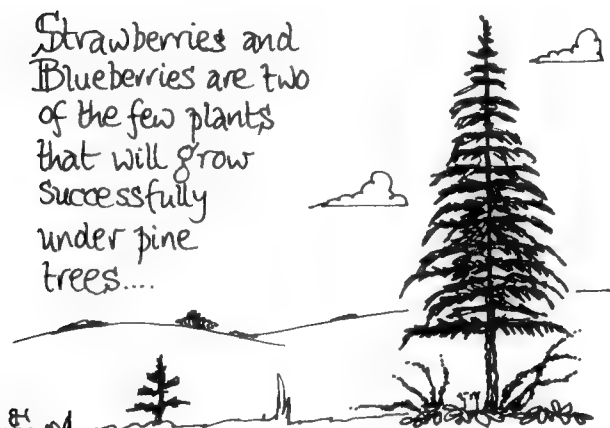
Although pines don't poison the soil, they do make it difficult for anything else to grow around them (except other pines, and a few other species that grow naturally in pine forests). Growth inhibiting substances are washed down from the pine needles, so anything under the trees or close to them where droplets can blow will be affected. Anything mulched with pine needles (except strawberries and a few others) will also be affected.

Pines also make the soil underneath more acid and compete for light and moisture with other plants around them. (The roots of a large tree extend at least as far as its height, sometimes twice as far, so large pines can affect plants quite far away.)

Avoid growing anything under the trees, except strawberries, blueberries, various fungi, or some grasses, and try topping the trees.

If you must have a garden close by, make it an aboveground garden to avoid affected soil, and put a trellis (maybe covered with a choko) between the garden and the trees to catch droplets blowing down from the leaves.

The more 'active' the soil (the more enzymes, microflora and such breaking down organic matter in your soil), the more likely it is the toxins in the soil will be broken down. Mulch as much as possible, dig as little as possible, and make sure you have enough nitrogen and phosphorous for good decomposition.



Pine needles and cones and bark can be composted, and the growth-inhibiting substances will gradually break down. Pine needles will slow down your compost, so it might be best to make a separate one with pine products. You might have to add more nitrogen than usual (say blood and bone or hen manure) to the compost.

Keep adding a small amount of dolomite every week rather than a lot every few months. Buy a soil testing kit to check your pH and see if you need to add more dolomite. A less acid and more fertile soil will help your problem, but won't eradicate it.

I'd also try weekly spraying with a dilute seaweed spray (bought or homemade), or nettle spray. Soak the nettles in water until it turns pale brown, use the water, add more to the nettle sludge and repeat. An acid soil can lock up a lot of nutrients, but this spray will make it easier for the plants to get at them. It may also help to 'toughen' the outer cell walls of your plants. (I've only heard this claimed for seaweed spray, and I don't know how reliable it is). Plants I've sprayed here with either seaweed or nettle spray have shown a much greater tolerance to various toxins, so it's worth trying.

I've covered this problem and many others like it in my latest book that will be released later this year, *Companion Planting that Works*.

Leaf miners and russet mites

Dear Jackie,

Once again leaf miners are out in force attacking my brassica seedlings. Last year they didn't just mine around the leaves but headed down the stalks of some seedlings and killed them. I've checked in books at the library and called the Botanic Gardens Advisory Service but can find out very little about leaf miners.

How can I protect my seedlings? Are the eggs laid on the leaf surface, and if so should I attack them then? How can I deter the adults from visiting the plants? What are their natural predators and how can I attract them to the garden? Is this mainly a South Australian problem?

Also this year my tomato plants were attacked by russet mites. I've been told sulphur with a wetting agent will control them. Could you tell me more about the mites? I prefer not to spray anything but aim for a natural balance in the garden. Any information on natural control would be greatly appreciated.

Thank you and best wishes,

Therese Kerkhof, Adelaide.

Dear Therese,

The mites and leaf miners aren't specific to South Australia, but both are worst in hot dry weather. (This year has been a doozy.)

The tomato russet mite travels up from the previous year's leaves in the soil so don't plant tomatoes in the same place every year. After every crop cover your soil with clear

plastic for a month to help kill the mites. Remove any old tomato leaves. Don't plant potatoes, petunias, capsicum or eggplant there either, because the mite can also affect these.

Russet mites don't fly so you can slow down their climb up the plant by smearing the base and the main branches with grease. Stake the tomatoes well so the leaves don't touch the ground, and be careful you don't brush against the plants and help the mites travel.

Wash your plants every few days with a wettex and warm, slightly soapy water then mulch with either newspaper or a weed mat to stop mites moving up the plant. This and the grease banding should be effective. If you have a bad case it's worth cutting off the best branches — the larger the better — and washing them thoroughly in warm soapy water. Plant them as cuttings in soil well away from the original plants and any others that might be affected by the mites. As you know, sulphur dusts can be used, but can hurt the plant in hot weather.

Leaf miners

The name 'leaf miners' is given to a whole range of pests who eat inside leaves. They can be the offspring of such insects as beetles, sawflies, moths and flies. The leaf miner on your cabbages is probably *Liriomyza brassicae*, the cabbage leaf miner, and the reason you haven't been able to find out much about it is that no one seems to have studied it much.

It isn't a common pest, and when it appears it usually doesn't do much damage as long as the cabbages are growing strongly. So probably your best defence is to water more and mulch more. I'd also recommend bi-weekly doses of homemade or bought seaweed spray (just cover some seaweed or nettles with water, and spray when it turns pale brown).

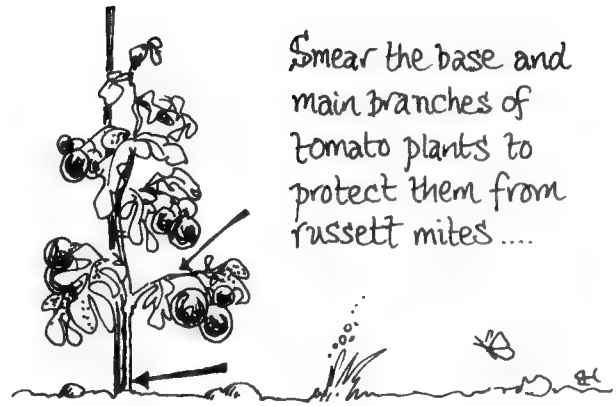
It will be hard to kill the leaf miner. They lay their eggs *inside* the leaves, and travel inside the leaves, and cabbage and other brassica leaves are waxy and most sprays don't stick on them. Try a spray of soapy water with a little derris mixed in and see if it's effective.

The adults are probably small flies. You might try trapping them with yellow sticky boards around your cabbages, or try an alfoil mulch around your plants to repel them.

Try interplanting with celery, broad beans, marigolds or lots of garlic to disguise the plants' shape and smell (at least four other plants to one cabbage plant). Don't plant straight lines of cabbage and don't leave clear space between them — interplant as much as you can. Leaf miners' most important predators are a range of wasps and hoverflies. See below.

Most importantly: let a few brassica go to seed. Most cabbage pests prefer to lay their eggs on cabbage gone to seed (where the adults can feed on the flowers) rather than new plants. The cabbage flowers will also attract predators.

I'm not sure if it's the leaf miner that's burrowing into



your brassicas. Look for slugs, earwigs and caterpillars as well.

Natural controls

Russet mites are more often a problem where natural predators have been reduced by spraying. In fact they only became a commercial problem when widespread spraying was introduced. Given that severe problems with cabbage miners are rare, there may be a reason for the lack of predators in your area. I'd suggest:

- making sure nearby spraying isn't cutting down your natural predators (unfortunately this is a social rather than a garden problem)

- letting lots of parsnips, dill or fennel go to seed regularly around the garden. These are excellent predator attractors

- planting native shrubs like melaleucas and grevilleas — a good selection so they flower all year round.

These won't be quick solutions though. Even after you have the flowers you may have to wait three years or so for the full effect, especially if there aren't good predator habitats already around your area.

Repellents

For both problems try a general repellent: mix as many of these as you can — nettles, wood ash (one cup to a bucketful of water) lavender, garlic, feverfew leaves or flowers, chilli, onions, wormwood, seaweed (or add some commercial seaweed spray) comfrey and horseradish leaves. Cover all these with water. When the water is slightly brown, make it slightly soapy (don't use detergent). Add a tablespoon of eucalyptus oil for every litre of spray.

Add potash to the soil (wood ash is good). Both mites and leaf miners are more common on potash deficient soil. Both potash and seaweed or nettle spray may make the cell walls of your plants tougher and less attractive to the leaf miners and mites.

Hope this helps. I would be interested to know the results with the leaf miners, because it's an unusual problem.

— REDUCE — REUSE — RECYCLE —

Making a crazy patchwork quilt from an old sleeping bag

Annie Lacey started with a secondhand sleeping bag bought for five dollars from a St Vincent's op shop. She put in some work during long winter nights and produced a warm, colourful bedcover — not to mention a satisfying piece of handiwork. A perfect winter project.

by Annie Lacey
Lyneham, ACT.

MY mother taught me how to make patchwork quilts, although she stitches them all by hand. Not being so patient myself, I use zigzag stitch on my sewing machine.

These quilts are very economical, using cheap, old fashioned, cotton sleeping bags which are also stuffed with cotton. Although the patches I used were left over sewing scraps, each one brings back memories of the original dress or trousers. Two Western Australian flour sacks that I incorporated in the quilt bring back memories of when I lived in Perth.

The Bond dingo

An interesting aside is that the red dingo on these flour sacks has also been on the flour mills in North Fremantle for as long as I can remember. Its presence loomed over our visits to Port Beach — the traditional family beach.



A section of Annie's crazy quilt featuring the Dingo flour bag.

It was alleged by a local paper that Alan Bond, supposedly a signwriter before he became rich(!) and famous, had painted this piece of Australianiana. Letters of outrage followed, all swearing that it was really "my grandfather" or "my uncle Clarry" who painted it.

I studied dressmaking at TAFE for a while and had a whole stack of samples suitable for the quilt. There are samples of machine embroidery, Italian quilting, trapunto quilting, hand and machine cutwork, circle embroidery, hand-stitched, flat and relief appliqué, various pockets, and different tucks including pin tucks. My daughter's name is also stitched into one piece.

The quilt I made is a real mishmash of material scraps, but you can choose a mixture of pastels or prints that simply harmonise and don't include any appliqué work.

The first snips

Start by snipping the sleeping bag down the centre seam and removing the zip and hood (save the hood for practising the zigzag stitch later). Then unpick the top and bottom seams. You'll be left with a whole piece of padded, covered cotton just the right size for a double or single quilt. Cut and curve the four corners and stitch up all the open seams using straight stitch.

You can wash the bag at this stage if it needs it. (Check that the dye does not run.)

Lay out the quilt and start placing the pieces from top to bottom. Curve the corner pieces to fit and overlap all pieces any way you choose.

The pieces must be cut into squares and rectangles beforehand and pre-shrunk (wash, if in doubt). Iron the seams on each piece by tucking under each of the four sides while you iron. Choose pieces that blend well, for instance, dark wool and cor-

— REDUCE — REUSE — RECYCLE —

duroy or all delicate materials in pastel colours. Make sure all material is colourfast.

After pinning the material, tack it thoroughly using a contrasting colour. We found a few stray pins machined into the quilt under a patch so we tried to remove them by working them through a small hole in the back with pliers. So be careful with pins and needles. Make a rule never to put down a pin or needle unless it is in your work or a pin cushion (not the floor, table or your clothes).

I didn't back the quilt with material but simply used a cotton of the same colour in the bobbin and white cotton uniformly, for the cover.

If you are using a machine, set your pressure dial completely compressed because you are using a very thick medium. Use a thick, size 16 needle. Because each sewing machine is different the tension, stitch size and width will have to be set individually, but practise on the hood until you are satisfied.

It helps to put the sewing machine on the right-hand side of the table, using the left-hand side to position the quilt. Complete all pinning and tacking before you begin machining. Even though you are using a zigzag stitch, backstitch at the beginning and end of all stitching.

There you have it, a cheap, new quilt for the bed.

Reusing Christmas cards

by Muriel Courtenay

Bundaberg, Queensland.

DON'T throw away your piles of old Christmas cards. Those trees, bells and baubles can live again to brighten up another Christmas and make excellent winter projects. Sort through them for cards where the back side of the print hasn't been written on. Measure 10 mm from the centre fold on the written-on side and cut down this line. Using white card, cut to size and glue along this hinge. If you prefer, tape it with decorative Christmas tape or make two holes and thread a narrow ribbon to keep them together.

If you want to make new Christmas cards re-usable, instead of writing on the cards make a paper insert for your personal message. Anchor it with a light dab of glue or a thin coloured cord.

Christmas place mats

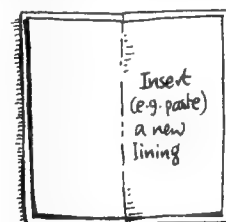
From cards not suitable for reusing, why not make some Christmas place mats. All you need is cardboard, glue and old cards. Cut a piece of cardboard approximately 38 cm x 27 cm. It will take 8 or 10 cards to cover this area. Make a dry run arranging the cards in a pleasing pattern where they overlap slightly. It's more effective if you cut away some of the background leaving a candle, bell or figure silhouette.

Use good quality craft glue and before pasting the card to the cardboard, dampen the print by placing it back down for a second on a moist wettext.

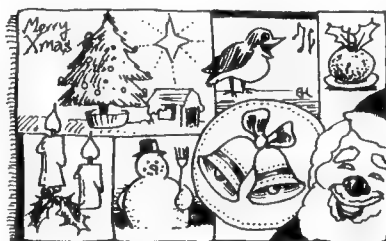
This makes the card more pliable and stops buckling as the glue dries. Attach the cards, being careful to line them up with the edges of the cardboard. Carefully smooth out all bubbles as you go, with a clean cloth or roller, working from the centre out. Make sure all edges are securely glued otherwise moisture can get underneath. Put a weight on top to keep them flat as they dry.

If you're using old cardboard, you may want to cover the back. I used thin Christmas wrapping paper, also dampened before glueing, and it worked well. If you have scraps of pasted wallpaper or cotton fabric they should be suitable.

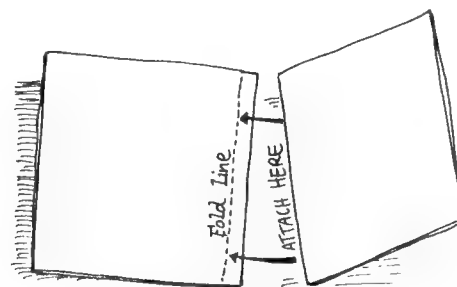
Apply several coats of clear lacquer or varnish to finish them off. You can also use this technique to make Christmas gift containers from tins or boxes. For sweets and biscuits, empty home brew tins, with their snap on lids, are



Cards for Re-use



Placemats

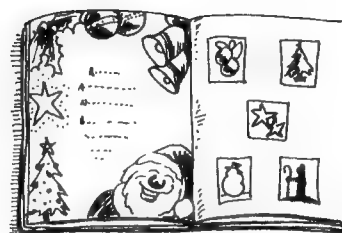


New Cards From Old

ideal. Cover them with the cards and cutouts, varnish, and add a perky bow on top. When doing this 'patchwork' method, you might like to work to a theme, such as all the snowy cards together, or red and orange cards on one, blues and greens on another. Humorous pictures, religious, Father Christmas themes or just a mixture. Whatever you choose, they'll always look cheerful, colourful and Christmasy.



Gift Containers



Children's Xmas Book

Children's Christmas book

Make a Christmas book for children by cutting a sheet of brown paper into double leaves. Machine stitch or staple down the centre to make a book. Paste cards on the pages, and group them around the words of a Christmas poem, carol or song.

Vines and creepers

Autumn is also the time to make Christmas wreath bases when you cut back vines or creepers. Take three or four long strands twining them together loosely and form

them into a circle binding the joined ends with string or wire. Add extra bulk by twining pieces through the strands until you get a thick ring. Put them away to dry out.

I used passionfruit vine strands to make mine but any pliable tough creeper should do. When Christmas comes, decorate them with dried flowers, foliage or gumnuts or for a more traditional look, pine cones and greenery.

It's never too soon to start getting ready for next Christmas!

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WORLD EXPEDITIONS

Solar hot water in a frosty climate

by Erle Bartlett

Hartley Vale, New South Wales.

WE DO not like having to light our solid fuel stove every day in summer, so using a solar collector for hot water seemed to be a good idea. We have a north-facing roof on our laundry to place a collector and a convenient sub-roof area above the laundry roof to house the storage tank. However, we had to have a frost-proof system. We can expect frosts regularly in nights between April and November with temperatures that drop down usually to about -4° or -5°C , often to -8° or -10°C and very occasionally down as low as -12°C . Apart from being frost-proof, the system also had to be:

- suitable for a low pressure supply
- easy to build and maintain
- cheap to construct.

The diagram shows what we developed. Apart from the collector, which we bought secondhand from a demolition yard, there are two tanks, called the inner and outer tanks respectively, and two header tanks, one for each of the two main tanks. The system works by heating the anti-freeze in the solar collector, and then circulating the hot anti-freeze around the domestic water to heat it.

We bought the inner tank from a scrap metal dealer. It is made from copper and has a capacity of about 20 gallons (90 litres). It came from somebody's hot water supply previously and had a cold water inlet pipe which ran to the bottom of the tank and a hot outlet at the top. This inner tank contains the hot water to be used domestically. The hot outlet runs to the laundry tubs and a shower recess. The cold water is held in a header tank which is situated just above the inner tank itself.

Header tanks

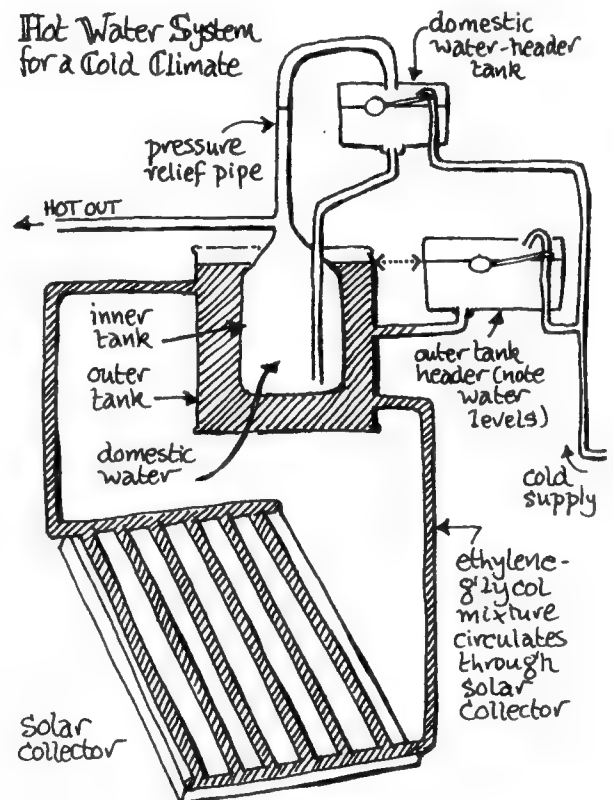
If our roof line was higher we may have lifted the header tank higher to gain a little more pressure. We bought the copper header tank from the same scrap metal dealer on the advice of a plumber friend. It was formerly used as a toilet cistern because that is what it was! This style of cistern was common some years ago, but is currently out of style and is often replaced because of problems getting replacement seals.

When you use these cisterns as header tanks, the button and flushing mechanism are removed, and you simply need to check that the seal on the ball-cock valve is

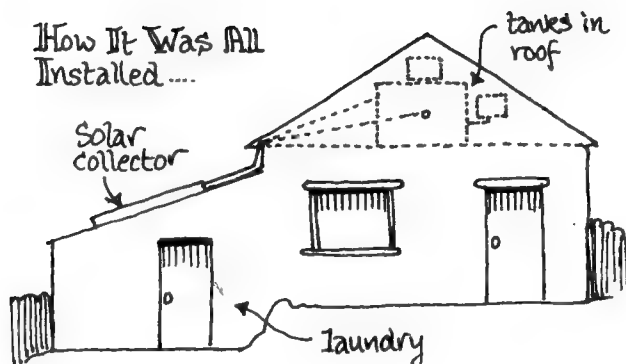
serviceable. The large flush pipe thread can be reduced by suitable nipples so that it can be connected onto more suitably sized pipes into the cold water inlet of the inner tank. A shepherd's crook pipe, which leads back into the header tank in the standard fashion, provides pressure relief in the inner tank. This water is hot, so you need to use a metal cistern as a header tank, rather than a plastic one.

Outer tank

All the frost-resistant features are found in the outer tank and the solar collector to which it is attached. Our outer tank is made from a cut-down 44 gallon (200 litre) drum. It was cut down to fit into a fairly limited roof space and also matches fairly well the height of the inner tank which fits easily inside it. Two large fittings were welded to the sides of this tank — one high up to connect to the top, or hot, outlet



Erle's frost-proof solar hot water system.



from the solar collector, and one down low to connect to the bottom or cold inlet of the collector.

The inner tank was placed inside this outer tank on a loose bed of hard plastic pipes to prevent any electrolytic action and decay which would occur if the two different metals had been in direct contact.

Anti-freeze solution

When all the tanks and pipes were in place, connected and sealed, the outer tank and collector were filled with a mixture of water and ethylene-glycol, which is commonly used as an anti-freeze additive in car radiators. The best way to buy it in bulk is from a petroleum distributor in a 20 litre drum. This is much cheaper than buying the small containers available from garages — the difference in price per litre is quite surprising.

The amount of ethylene-glycol you use will depend on how cold your area can get. The following percentages of glycol will prevent freezing (and thus pipe and collector damage) down to these temperatures:

Percentage of ethylene-glycol	Freezing point in Celsius
10	-4°
25	-12°
50	-34°

You can get the desired percentage by carefully measuring the capacity of the inner tank and the collector as you fill them, bucket by bucket if you like, and adding the appropriate amount of ethylene-glycol as you fill. For example, three buckets of water and one of ethylene-glycol give a 25 percent mixture.

Fill the inner tank to a level that will ensure that the mixture can circulate freely from the collector through the top pipe up into the tank. If the liquid level is below this pipe, then circulation will not occur and your water will not be heated.

At this stage you should use a battery tester or hydrometer to determine the density of the mixture. Record this reading permanently to use as a reference in the future. Once a year, just before the heaviest frost period, I check the

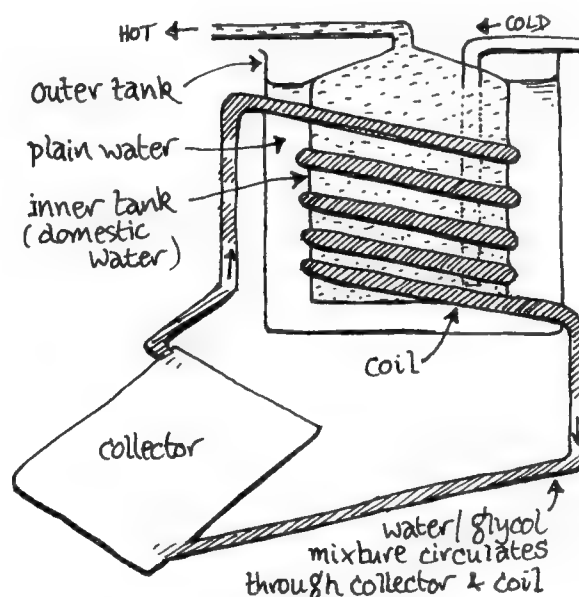
density of the liquid in the tank to see if more ethylene-glycol needs to be added to bring it up to the required strength. The ethylene-glycol evaporates slowly so the annual addition will only be small. The amount you add is at first a matter of trial and error but with experience you will become accurate and quick.

The water in the outer tank evaporates much more quickly than the ethylene-glycol, and that is the reason for the extra header tank attached to it. This is set so that its full water mark is level with the water level in the outer tank. When water evaporates from the outer tank, the water level in the header tank drops as well and opens the ball-cock valve to refill the level in both tanks automatically.

All that remains is to insulate all the pipes and the outer tank with whatever material you have to hand. If you can, provide some sort of removable lid over the top of both tanks to try to reduce evaporation, and insulate this as well.

And a final word of warning — ethylene-glycol is poisonous. When handling it you should take all reasonable care not to come in direct contact with it. If you ever need to drain your tank, collect it in suitable drums to be reused, either in your car's radiator, or back into the solar water system. Because the inner tank is under slightly more pressure than the outer tank, any leaks that occur will be outwards and this will prevent contamination of the domestic water. Nevertheless, direct human consumption of this hot water should be avoided — we use it for washing clothes and bodies — so that in the unlikely event of contamination, the chances of poisoning will be minute.

In some States of the USA the above method is not legal. I intend to modify my current system according to the diagram shown here, using some soft 3/4 inch copper tube. With this system there would need to be two leaks for any contamination to occur, although I believe the likelihood is remote anyway.



Government still ransacking East Gippsland forests

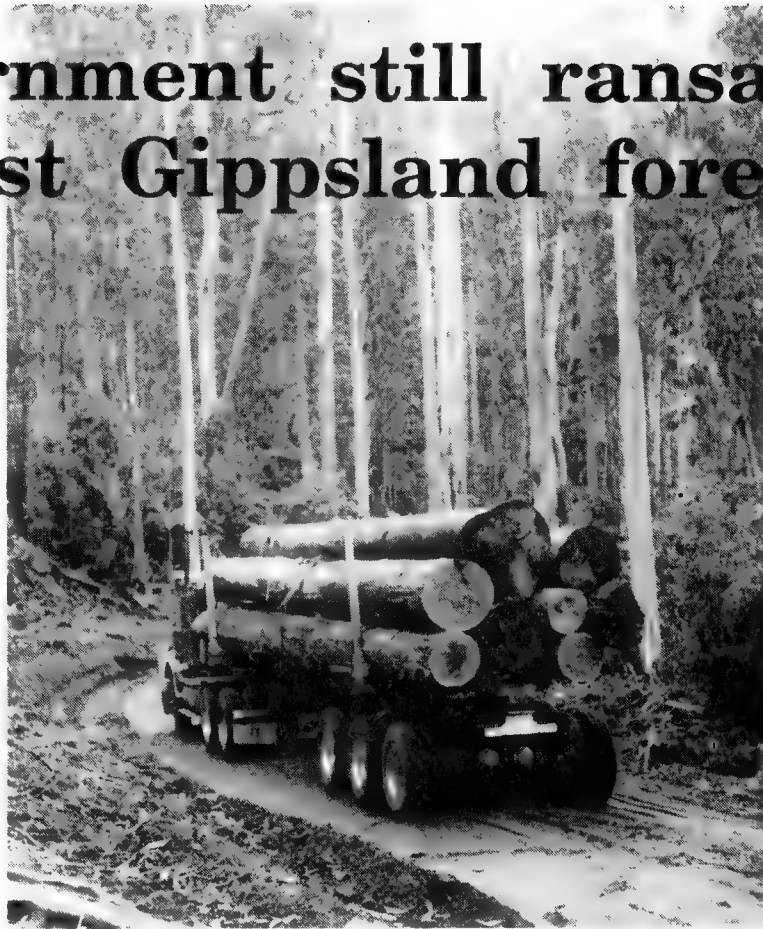
READERS of Earth Garden may remember the protests to save East Gippsland's old-growth forests at the start of 1990. Although the actions succeeded in drawing attention to the threat to our forests, the final agreement between the Greens, the Victorian State Government and the timber industry has seen no change in the rate at which these forests are being cut out.

In fact, the region's wood usage plans seem to favour exploiting these old-growth and controversial sites first. By eliminating the forests of greatest known value, the Department of Conservation and Environment is also eliminating the possi-

bility of losing any potential timber production forests to parks or reserves — a shrewd ploy.

The Government study team, set up to determine if there were alternatives to logging in the National Estate, had its figures cooked and its findings generally ignored. The DCE is cutting a calculated 179,000 cubic metres of high grade timber per year. This is supposed to be sustainable indefinitely. The study team's initial calculations (which were altered later) showed there were only 50,000 cubic metres available per annum. This means that if all potoroo habitats, all streamside reserves, all National Estate areas and all steep slopes were clearfelled, there still would not be enough to meet the Government's commitment to industry.

Are our forest managers really as incompetent as they seem? There is probably a simple answer to this considering the recent exposure of Government subsidies of \$41 million a year to the timber industry. Or is there a hidden agenda?



"Evidence of forest mismanagement and corruption continues to grow, yet the minister, Steve Crabb, sits as solid and immovable as a bulldozer, oblivious to facts that would embarrass most self-respecting democracies."

Keeping in mind our country's propensity for selling off our natural resources at obligingly cheap prices, we should consider the following points.

- Hardwood scantling is on the way out as a building timber (the major use of East Gippsland sawlogs) while woodchipping is on the increase.

- The present rate of cutting will not allow for the stated rotation time of 80 to 100 years. Shorter rotation cutting favours woodchipping.

- There are seven million hectares of eucalyptus plantations overseas which are due to come on stream in three to five years. When they do, our old growth eucalyptus will no longer be competitive with the cheap, high

quality plantation-grown eucalyptus for woodchips. This explains the frantic rush to 'cut-out-quick'.

- Possibly over a third of all East Gippsland's clearfell coupes are not regenerating adequately. Of the \$10 million appeasement money the Federal Government gave the State Government after last year's halt to logging the National Estate, \$4 million was to be earmarked for plantations. Instead it has gone into regenerating the vast areas of failed regrowth, seeding and hand planting the commercially desirable species — a plantation by any other name?

The Australian Heritage Commission recently started a 20-month study to determine if all values of the National Estate are adequately represented in our national parks. The dozers were in these same forests obliterating the values the AHC were to study, before the study even began. Also, an East Gippsland sawmiller has claimed that good solid logs are being downgraded illegally and chipped.



Logging old growth National Estate forests at Brown Mountain, April, 1990.

Currently timber companies are allowed to administer the grading of their own logs, a system which is obviously wide open to abuse. A high quality, 'A' grade log fetches roughly \$26 a tonne, while a 'D' or 'E' grade log returns between \$2 and \$4 a tonne to the Government. It is little wonder that the Government spends more on administering the industry than it receives in royalties.

Evidence of forest mismanagement and corruption continues to grow, yet the minister, Steve Crabb, sits as solid and immovable as a bulldozer, oblivious to facts that would embarrass most self-respecting democracies.

If the costs to industry were to increase, and a credible system of log grading introduced, the industry would be forced to shift itself quickly into establishing plantations and move away from exploiting our native forests. (Yes, they're our forests too.) This shift is already happening slowly — New Zealand and Australian plantations now have sufficient to meet most of our sawn timber needs.

To speed up this inevitable shift, conservationists must encourage consumers to buy softwood timber, lobby for increased royalties that reflect the true cost of timber harvesting and keep pushing for the establishment of recycling plants instead of world-scale pulp mills.

It's estimated that the old growth forests outside of parks in East Gippsland will be destroyed in six to ten years. This means 30,000 years of tree evolution will have been wiped out in 40 years.

CROEG MEMBERSHIP

'Concerned Residents of East Gippsland' is a conservation group which has been working hard to protect our unique forests for the past 12 years. Being on the front line, we are able to lobby our local Department of Conservation and Environment. We have played a major role in successfully fighting off two (now three, hopefully) pulp mills in the area. We play 'watchdogs' in the forest and network closely with Melbourne based environment groups. Among other things, CROEG continues to:

- push for the rapid shift of the timber industry into hardwood plantations
- campaign against woodchipping our forests
- expose the mismanagement of our forests.

Now that the East Gippsland Coalition's campaign has been absorbed by other environment groups, CROEG is the only voice speaking solely for the conservation of the last and largest forested area in Victoria.

Our work load is stretching us to the limit. We ask Earth Garden readers to help us continue our work. Members of CROEG receive an eight page newsletter six times a year, packed with the latest news on conservation from East Gippsland's front line reporters. CROEG membership costs \$12 (\$10 concession). Fees can be sent to CROEG, PO Box 269, Orbost, Victoria, 3888.

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Timber homes — which way now?

With over 40 years' experience in using timber as a building material, Graham Roberts now finds himself in a quandary regarding, on one side, the use of timber in building and, on the other, the conservation of our forests. In this article he suggests some ways that might ease the conflict.

by **Graham Roberts**

Gungal, New South Wales.

TIMBER is one of the oldest and probably most beautiful of building materials. It is understandably much sought after. But it is now time to look closely at how we are to maintain a supply that satisfies the demand without the destruction of the earth's natural forests. Or perhaps we should attempt to modify the demand?

Timber conservation in Australia has been under threat recently, generally from the wood chip industry trying to satisfy export demands instead of our domestic market. Governments must be forced to manage the existing logging leases in a sustainable way and leave the remaining natural forests alone.

In my opinion, the best way to achieve sustainable logging is to keep demand low and to reduce waste (overuse?) by recycling as much as possible. Next time you go to your local shire office, ask them if you can build using recycled materials. The answer, however, is likely to be, no.

Until the late 1950's almost every timber home in Australia was constructed from native hardwoods and was skilfully cut and jointed using mainly hand tools. These heavy framed houses have in most cases withstood the test of time, the elements and white ant attacks and have remained true and straight, often getting stronger over the years. Few old

h a r d w o o d houses, when correctly built and maintained, have wood rot or show stress. Many homes represented work of true craftsmen, the fine old 'Queenslanders' being classic examples. A new house today may seem better value than an old one, but I feel the comparison is dubious. The

brick veneer, aluminium-windowed, tile-roofed monstrosities prolific in the suburbs are the ultimate in wasteful use of resources. These sterile edifices, encouraged by most local shires and erected by hungry developers mostly on land devoid of trees, are aimed at a throwaway society, as often they are built not to last as the older styles did.

The average cost of a home in 1950 represented roughly 200 weeks of a modest income. An interest rate of around eight per cent meant that the home could be owned after 10 years. The equivalent (though perhaps inferiorly built) home now represents 330 weeks' income and with interest rates at around 15 per cent there is little hope of owning in 10 years. So where are we going? Building throwaway homes, madly clearing forests to meet the insatiable demand of a wasteful society to make bigger profits for the banks?

Modern homes are built using the 'light timber code' which allows for roughly 30 per cent less timber to be used than in the older style constructions. The argument that 30 per cent of timber is being saved is not valid if the product does not last as long, and if the resource is being used wastefully. The most common timber used in modern homes is *Pinus Radiata*, a quick growing soft wood that will not last as long as hardwoods. People should be encouraged to build smaller homes from more durable species with the reduction in size offsetting the higher material costs.

Fifty years ago most Australians grew up sharing a room with a sibling, the 'family room' was the kitchen, the 'best room' was generally 4 by 4 metres and used only for visitors. The verandah usually served as the sun room. Many of these lovely old cottages, still seen in older suburbs and country towns, reflect a lifestyle of solidarity. Most families seemed to suffer no ill effects from having to share in a modest home.

Why do consumers want tile roofs? Prestigious, perhaps. Wasteful, certainly. Tons of clay or concrete demands so much more timber in the roof frame to support it, than if insulated, metal roofing, which is light, attractive, cost effective and durable, was used. Surely the main concern must be our environment and preservation of resources.

Quality of life? What's the use of having a population living in large expensive homes with expensive furniture if the air they breathe is polluted, the food they eat contaminated and their forests denuded of flora and fauna. It is time that Australia's consumers and politicians looked seriously at a 'quality of life' that this land can sustain.

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Harvest timetable, continued from Earth Garden 75

Harvest Period	Crop	Nearest CES Job Centre or Agency	Harvest Period	Crop	Nearest CES Job Centre or Agency
<u>Victoria</u>			<u>Queensland</u>		
Sep-Nov	Asparagus	Dandenong	Jul-Sep	Ginger	Nambour
Oct-Dec	Strawberries	Echuca	Jul-Oct	Strawberries	Nambour
		Kyabram	Aug-Dec	Asparagus	Warwick
		Lilydale	Aug-Nov	Tomatoes	Bowen
Nov-Feb	Cherries/berries	Lilydale	Aug-Nov	Var. small crops	Ayr
Nov-Dec	Tomato weeding	Echuca	Sep-Nov	Potatoes, onions	Toowoomba
Jan-Mar	Pears, peaches	Shepparton			Gatton
		Kyabram	Sep-Nov	Tomatoes	Bundaberg
		Cobram	Dec	Stone fruits	Warwick
Jan-Apr	Grapes	Mildura	Dec-Feb	Mangoes	Ayr
			Jan-Feb	Grapes	Warwick
			Feb-Mar	pears, apples	Warwick
<u>South Australia</u>			<u>New South Wales</u>		
Sep-Jan	Oranges (packing)	Berri	Sep-Apr	Oranges	Griffith
Oct-Feb	Strawberries	Payneham	Sep-Dec	Asparagus	Dubbo
Dec-Feb	Apricots	Berri	Oct-Dec	Asparagus	Cowra, Parkes
Feb-Mar	Grapes	Noarlunga	Oct-Dec	Cherries	Young
	Dried fruits	Berri	Nov-Jan	Cotton chipping	Narrabri
	Apples, pears	Payneham	Nov-Jan	Cherries	Orange
			Nov-Feb	Cotton chipping	Moree
			Nov-Mar	Onions	Griffith
			Nov-Apr	Tomatoes	Parkes
			Dec-Mar	Oranges	Leeton
			Jan	Apricots, prunes, peaches	Griffith
			Feb-Mar	Prunes	Young
			Feb-Mar	Grapes	Griffith, Leeton
			Feb-Mar	Cherries, peaches	Parkes
			Feb-Apr	Apples	Orange
			Feb-Apr	Pears	Parkes
<u>Tasmania</u>					
Dec-Jan	Raspberries	Kings Meadows			
Feb-Apr	Grapes	Launceston			
<u>Western Australia</u>					
Jul-Dec	Wildflowers	Geraldton			
Sep-Nov	Mangoes	Kununurra			
Oct-Dec	Oats, wheat, barley	Merredin			
		Geraldton			
Nov-Dec	Oats, wheat, barley	Albany			
		Midland			
		Northam			
		Esperance			
Feb-Mar	Wildflowers	Geraldton			
All year round	Bananas	Kununurra			

Note: always check with the appropriate CES Job Centre before travelling to the harvest area.

Barter for financial independence

by Karen Russell

Ingleburn, New South Wales.

BARTERING is a way of helping oneself by helping others. Sometime in the past two hundred years or so, when bartering gave way to trading solely with cash, I believe the concept of 'community' and 'community spirit' began to suffer.

The idea of the national 'Barter Directory of Goods and Services' arose from my desire to encourage community spirit. We have now become a credit society burdened with debt and anxiety. The value of the dollar has decreased dramatically, unemployment is rampant and we are slaves to the whims of an unstable economy, even though we may do worthwhile, stable work all our lives. In light of all this, bartering becomes an attractive option.* It offers people the opportunity to gain control over their lives and destinies.

I hope the Directory will simplify bartering and make the system more accessible for people to obtain goods and services that might otherwise have been out of the question. Businesses, too, could provide a bartering option for their customers to stimulate trade and productivity. I believe that the directory will also:

- empower people to help themselves by helping each other
- promote bartering, with or without cash supplements, in lieu of credit dependency
- create community spirit
- create an alternative economy which is not dependent on the banks.

People can invest in themselves by learning new skills and building up a store of self-manufactured products, thereby increasing their personal bartering potential.

The Barter Directory will be printed quarterly, and gradually be broken down into a series of local directories. The cost per issue of the national Barter Directory is \$7.00 plus \$3.00 for postage and handling. An annual subscription costs \$25.00 plus \$10.00 for postage and handling. For your copies send a cheque or postal order, made payable to 'The Barter Directory', to the address below.

If you wish to offer your goods or services in the second edition of the directory, entries will be free until 31 July. Further information can be obtained by sending a stamped, self-addressed envelope to: 'The Barter Directory', PO Box 746, Ingleburn, New South Wales, 2565.

**For bartering ideas, see Jose Robinson's story on page ten of EG 53.*

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The race for solar power

It was solar cells developed at the University of New South Wales that powered *Spirit of Biel*, the Swiss entry, to its overwhelming victory in last year's Darwin to Adelaide Solar Challenge. The Honda Team car, the race favourite, finished in second place — a full day behind the winner.

by Robert West*

St. Leonards, New South Wales

The Swiss entry, *Spirit of Biel*, using solar cells developed in Australia, took 46 hours and 13 minutes to cover the 3077 kilometres in the 1990 Darwin to Adelaide Solar Challenge. At an average speed of 64.8 kmh, it took one hour and 19 minutes longer than the General Motors *Sunracer* that won the first Solar Challenge in 1987.

The 1987 event, however, was run in brilliant sunshine; in 1990 most entrants had to cope with rain, an overcast sky and strong head winds.

The Solar Challenge is the brainchild of Hans Tholstrup. His aim is to increase awareness of solar cars and stimulate research and development.

The experts were surprised that *Spirit of Biel* was able to finish so far in front of the multi-million dollar Honda car and the 34 other entrants. Professor Jeanneret, the Swiss team's project manager, was a little surprised.

"On paper, the Honda team car was better than ours, and our calculations indicated we would be two hours behind the Japanese at the finish," he said.

He attributes the Swiss team's superiority to two factors. The solar cells on *Spirit of Biel* overlapped slightly, giving a high theoretical efficiency of 97 per cent, and the

vehicle had larger diameter wheels — 65 cm versus Honda's 45 cm — for lower rolling resistance.

The team also gambled on paying a weight penalty so that it could carry a larger capacity battery than most of the other cars. This enabled it to outrun the cloudy conditions on the critical first day or so and leave the other entries labouring behind.

By the end of the first day it was already 50 km ahead.

On its last day, in full sunlight and with no wind, *Spirit of Biel* travelled at 90 to 100 kmh to the finish while the rest of the field had to deal with overcast and windy conditions.

The car is shaped like a wing for efficient aerodynamics and has a small bubble for the driver's head. The electric motor is the best available with an efficiency of 94.6 per cent. This means that the motor runs cool and the car was able to maintain higher speeds than the other entrants.

Spirit of Biel weighed around 175 kg, 25 per cent more than the Honda.

"That wasn't a problem because weight only matters at the beginning when it reduces acceleration. Once the car is up to speed it doesn't make any difference at all," said Professor Jeanneret. (Just as well because the racer also carried 3 kg of very shiny, blue and pink paint!)

The laser grooved solar cells used on the car were designed at the University of New South Wales by Professor Martin Green and Dr Stuart Wenham. They were helped by contributions from the New South Wales Government.

The cells were manufactured in Europe on a pilot production line by Telefunken Systems Technik. They cost much less than the 'space satellite cells' used by the top American and Japanese entrants in the previous race.

Ironically, the laser grooved cells were not available to Australian teams.

The car was powered by 196 solar cells and used a \$20,000 silver-zinc battery for starting and to carry it through periods of cloudy weather. Race regulations stated that the battery had to be charged entirely by the solar cells throughout the event.

Each car was allowed to charge its battery from the sun for two hours before the start and



Spirit of Biel crossing the finish line. (Photo by Robert West)



The *Spirit's* solar array on full tilt towards the sun to charge its batteries. (Photo by Robert West)

after the finishing time each day. The battery was the only element that could not be changed during the Challenge.

"All of the components performed perfectly," said Professor Jeanneret. "In fact, I do not think we would want to change anything."

General Motors' *Sunracer* used expensive (\$1.5 million) gallium arsenide solar cells to win in 1987. So in 1990 the race organisers created two classes, one for cars using gallium arsenide cells and one for those using the cheaper (\$20,000) silicon cells.

Solar Flair, entered by the Californian State Polytechnic University, was the only car in the race that used gallium arsenide cells but these apparently were 'seconds' and performed no better than good quality silicon cells.

The progress made in solar technology is clearly shown by the times recorded this year. According to Freddy Sidler, the *Biel* team manager, current silicon solar cells have an efficiency of 17 to 18 per cent compared with only 14 per cent in 1987. This means either an increase in speed or fewer cells to produce the same output, thereby reducing costs.

The race included 10 entries from Australia, 11 from Japan and six from America. The Australian entries were private, commercial or funded by universities and technical colleges, and included one from Annesley Girls College in Adelaide. The Australian Energy Research Laboratory entrant was the first Australian home, finishing sixth. This vehicle completed the first Solar Challenge as the Ford Australia entry. Denmark's only entry was unfortunately destroyed near Coober Pedy when it was picked up by a willy-willy and deposited 30 metres down the road!

Denmark and Switzerland are currently manufacturing electric cars. Why, you may ask, would two such small and cold areas be so concerned with winning a solar car race? A partial answer is that a large part of the solar car technology can be applied to non-solar electric vehicles. They work on the same principles except that non-solar cars use electricity from the power grid to charge their batteries.

In Switzerland almost every wage earner owns a car but uses it generally only for short distances. While unwilling to do without the convenience of cars, many Swiss people are concerned about the pollution from carbon dioxide emissions. However, the power grid in Switzerland is supplied by nuclear power stations, which the environmental lobby also opposes. At least one Swiss town has solved this dilemma by installing a community solar power cell array to recharge electric cars. Any excess power is sold to the local electricity authority.

Swatch, the watch company, sponsored *Spirit of Biel* and is using the winning car's technology to develop a production model which could be built commercially in three years. It is planned to have a range of 200 km, and be capable of speeds of up to 100 kmh. Experts consider that electric cars must have a range of at least 160 km and a top speed of at least 80 kmh to be practical and acceptable in countries such as Australia and the United States.

General Motors has announced it also has an electric car ready for production in the US that should be available within two or three years. And Volkswagen has a diesel/electric car that can be driven by the electric motor in towns and the diesel engine at speeds.

Solar cars at the moment are expensive prototypes but the knowledge gained from such events as the Solar Challenge plus the environmental consequences of 'petrol power' must mean that battery powered vehicles are our cars of the future.

***Robert West is the Energy Editor for the Department of Minerals and Energy, New South Wales. The article and photographs are reprinted, with kind permission, from the Department's magazine *Energy Focus*.**

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Franklin, my dear, I don't give a dam

The first of July is the eighth anniversary of the High Court's decision to save Tasmania's Franklin River from damming and destruction. In March this year I was lucky enough to fulfill a long-held ambition and spent 12 days rafting this mighty river.

by Alan Thomas

Trentham, Victoria.

RAFTING the Franklin River in Tasmania's south-west wilderness is an all-consuming experience. It's the only river in the world you can raft from its mountain source, out to the sea, without seeing any human settlement or development. I've wanted to raft the Franklin since it loomed large in my life during the Blockade to save south-west Tasmania in the summer of '82 to '83. That's eight years I've waited, and at the end of each summer between then and now I've said, "Next summer, for sure".

There are nine of us thrown together in the wilderness for 12 days on this World Expeditions rafting trip. Two guides, and seven rafters. Louise, Paula, David and I with guide, Wade Fairley. Louise is a Sydney vet and keen sailor,

Paula is a solicitor and David a banker. In the other raft are the other guide, Murray Tucker, and three mates from Adelaide — Dave and John (more bankers) and another John who runs a book and record exchange.

We meet at Paddy Pallin's outdoor shop in Hobart on the first day and our mini bus takes us high into Tasmania's Central Highlands.

Wade has rafted the Franklin seven times and Murray twice. Both are experienced boatmen on Australia's other raftable rivers. Both are quietly committed to this wilderness and to helping people discover that rafting the Franklin River can give you an entirely different perspective of life in Australia. Living in the mainstream is only a small part of what Australian life can be about. This wilderness roars that at you.

Every day, we paddle among majestic, untamed



Heart-stopping action on the Franklin River: "I didn't hear one banjo," muttered Dave.

forests set against the stark power of cliffs carved by ice and water. As a tiny speck on a lump of rubber, privileged to feel this power of Nature, I felt like we were continually entering breathtaking chambers of a mighty cathedral. I found my belief strengthened that the 9 to 5 grind of bus fumes and air conditioned offices is no place for humans to flourish. Endure, perhaps.

* * *

Before we'd hit the river, we'd been full of questions. How many portages will we have? How often will we feel like we're drowning? It gradually sank in from the guides' vague replies that there are no hard and fast guidelines. If it rained heavily overnight the water level could rise two metres so what's usually a 30 minute portage becomes an eight hour endurance of carrying every barrel of gear along slippery, steep paths to avoid a killer rapid. We were lucky and had virtually no heavy rain until the last day and so had no major portages.

On day two we finally 'put in' on the Collingwood River, high in the centre of Tasmania, for half a day of short spells of rafting and long spells of dragging the rafts over boulders exposed by the lower summer water levels. Late in the day we reached the confluence of the Collingwood and Franklin Rivers at the start of the Franklin's raftable length.

Our campsite this first night on the river is 'Gordian Gate'. There's plenty of time to set up our tents, have a cuppa, and prepare dinner before staggering off to sleep at dark, around 8 pm. Wet sleeping bags, tiny camp sites and cold feet are going to be standard issue for the whole trip.

We wear sand shoes and wet suits on the river, and have a change of clothes stored in a 'dry bag' — a small rubber sack strapped to the bottom of the raft — for off-river wear. No room to carry luxuries like soap or a razor. The food and cooking gear are packed into large plastic drums with handles and screw top lids. The focus is always the rushing river, but the feeling is of total remoteness and absolute reliance on the contents of our rafts.

Day three begins with a wet misty morning and the level of "the creek", as Wade calls it, perfect for rafting. The boys from Adelaide have christened all the food 'hippie tucker' and John reckons the mountain bread looks like chamois.

We enjoy a superb morning of full rapids, stunning chasms of quartzite valley walls, and lush virgin rainforests. Wherever you look the bush is incredibly dense, with the ubiquitous myrtle beech (*Nothofagus cunninghamii*), leatherwoods, mountain laurel trees and ti tree, and the mighty Huon pine trees (*Dacrydium franklinii*). There are few eucalypts, except higher up near the hill tops.

Some of the Huon pines are more than three metres wide at the base, and their growth rings are often only one millimetre apart, so many of the larger trees are 2,000 to 3,000 years old. The Huons are easily distinguishable by

their fir or pine needle-like leaves. The myrtles have small round leaves, and are everywhere, often with their trunks and branches twisted to the most abstract shapes and angles.

The special beauty of this place creeps up slowly, rather than hitting you over the head like, say, the Milford Track in New Zealand, or the Blue Mountains. What makes the excitement and the power of the place so intense, is the periodic roar of the rapids that demand your total concentration and effort.

We reach the 'Log Jam', a rapid which requires careful manoeuvring. A huge, ancient log is jammed at the top of a two metre fall, right across the river. It's wedged securely, and will probably stay there for hundreds of years, although every winter the flooding torrents carry boulders and tree trunks downstream to change the layout for next summer's rafters.

"Everybody out of the raft. Louise, you take the paddles. And you two crawl out on the log so we can drag the raft over," says Wade.

The rafting guides change from being amiable jokers, to serious professionals when we get near a dangerous rapid. We balance on the log at the top of the fall, and heave the rafts over, to drop them into the white water cauldron on the other side, while hanging onto the rafts with a stern rope.

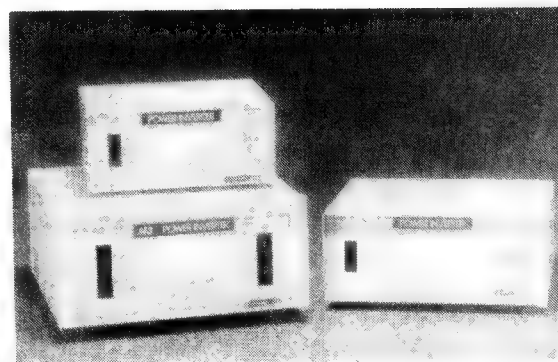
Next is 'Nasty Notch' another unraftable rapid: a short portage around the slippery rocks of the cliff face.



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Rafting guide, Murray Tucker, manoeuvring a raft around a boulder face to avoid an unraftable rapid — 'The Churn'.

Lunch is here, and the cold drizzling rain and morning's effort have made us ravenous. We wolf down the mountain bread and scroggin — an energy hit of nuts, dried fruit and chocolate that we joke and fantasise about as each lunchtime approaches. We clamber back into the rafts for the most striking scenery so far as we enter Descension Gorge, which has impressive orange quartzite cliffs sheer to the water. The river is a weak-tea colour (beer colour by day ten!) thanks to the tannin in the button grass plains high above the river.

The Irenabyss

After Descension Gorge we paddle into the Irenabyss — named by Dr Bob Brown in 1976, when he was part of the third party ever to raft the Franklin. Bob Brown has named many of the features on the river. Irenabyss is a 'Place of Inner Peace' and a stunning, slow-moving contrast to the wild rapids preceding it. The Irenabyss campsite, like all the others, is invisible from the river and consists of about three or four flat areas, each the size of a tablecloth. Minimal impact bushwalking and camping means we never find traces of previous visitors. We carry all our rubbish out with us, and leave each campsite with no sign of our stay.

This has been a magic day. I feel like I'm in the very heart of the wilderness that I picture in my mind's eye when I think about the wild places on Earth which need conserving, and the spiritual inspiration which comes from Nature. Being here just strengthens and underlines all the reasons for planet care.

As we set off the next day towards 'The Ravine', a massive wedge-tailed eagle appears high on the skyline as it

drifts towards a perch on one of the many dead, towering, ghostly-grey eucalypt trunks which spear the greenery of the forest canopy.

'The Ravine' is a major canyon on the river with sheer walls and killer rapids. Our aim, while the river level isn't too high, is to scurry through it in the next three or four days, and escape the demands of some arduous and hair-raising portages. We're lucky, and get through with no major portages.

The Crankle

In one great, two kilometre meander, the

river flows in every compass direction. This is 'The Crankle' and tonight's campsite. We have a Mexican bean dish and cheesecake mixed on a barrel lid — some rafters hit the sack at 7:40 pm.

The next day, as we begin paddling, the low cloud lifts and we are soon enjoying the clearest, sunniest day of the trip so far. It would be foolish to expect sunny, windless days in this part of the world. One of the main reasons it remained untouched until 'progress' turned its violating eye towards it in the mid 70s is simply the rugged weather conditions. The winds howl up the river valley — south westerlies straight from the Antarctic — and the rainfall is about 160 inches a year.

I spot a platypus splashing in a quiet pool, one of the few quiet pools inside The Ravine. The sheer walls on either side of The Ravine would make an emergency trek out of the river virtually impossible.

"Now we're really committed!" says Wade.

It is difficult to capture the majesty and exhilarating beauty of this place. Bob Brown came very close in an essay he wrote on how wild places can fire the human spirit, published some years ago. We will reprint it soon in Earth Garden. If Tasmania has been the engine room of the modern Australian environmental movement, then Bob Brown is certainly one of those who kick started the engine and has kept it running ever since.

The Churn

'The Churn' is a heart-stopper of a rapid. A mass of boulders strewn through an unraftable rapid, it's a major portage up and around a steep slippery track. The rafts have



'The Room of Mirrors' deep in 'The Cauldron': no time for quiet reflection.

to be dragged around the boulders. High on a boulder face next to the white water we anchor a rope that's tied to the raft further down the slope while Wade and Murray drag and shove the rafts around the steep face. At times they're hanging onto the raft—while it's vertical—until eventually it's around 180 degrees, and Murray leaps into it to manoeuvre it through the rest of the rapid to the end of the portage track.

After lunch in a cave, and a paddle through a deep, open section of river (Serenity Sound) we reach our camp for the night, which is the head of the rapid 'The Coruscades'.

This journey is becoming an episode in life which changes my perception of Tasmania and Australia. Never again will I be able to contemplate or visit Tasmania without the knowledge that Out There is a huge slab of Nature untamed, and unknown to nearly all of humanity.

Thunderush

Today we negotiate the superbly named 'Thunderush'. In high water Thunderush means a day-long portage, rafts and all, along a tortuous cliffside track. Climbing smooth boulders with ropes, up and down ladders, and around sheer faces on a narrow metal walkway. All this would be hard enough without the barrels and gear you'd have to lug. Again, we're lucky and don't have to do the infamous Thunderush High Portage. It's a simple two hour portage on the other bank, before lunching in the sunlight.

While lunching on our standard fare of salad sandwiches on German Army sour dough bread, with hot Bengal pickles and scroggin, we spy the remains of a raft wedged between rocks halfway through the rapid. It's flapping in the current: one that didn't get away.

The Room of Mirrors

We are delivered from the perils of Thunderush, after

a heart-pounding section of paddling, into 'The Sanctum' — our peace before 'The Cauldron'. This is another portage rapid. A killer, in fact. We pull in against a steep rock wall and pull ourselves up to the top by rope before setting off on a steep up-and-down track while our guides and the two smallest rafters rope the rafts over the rocks and white water.

A huge boulder sits to one side of the rapid. The rafts are dragged (empty) to the downstream edge of the boulder and lowered by rope into the foaming Cauldron. Louise is lowered into the raft, which sits rocking in the wild water, as the others pass her barrels to be lashed back into the raft. The rest of the rapid is negotiated and Louise and the others can calm down again.

We name this section of The Cauldron 'The Room of Mirrors'. As Wade would often say, in a gruff football commentator's voice, "We've been to The Room of Mirrors and taken a good, long, hard look at ourselves! A character-building rapid!"

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Rock Island Bend

After more steady and relaxed paddling, we reach a spectacular part of the river — 'The Pig's Trough' and 'Rock Island Bend'.

Rock Island Bend is probably the best recognised image of the Franklin River for many Australians. The picture of this tree-topped rocky island rising from the middle of the river, surrounded by swirling mist, was used by the The Wilderness Society in posters and full page colour newspaper advertisements on the day of the 1983 Federal election.

The Pig's Trough is a rapid next to Rock Island Bend and takes its name from the waterfall gully which runs into the river next to the rapid. It was named by the convict loggers in the 1830s. You can only wonder at the horrendous state of mind and body of the convicts as they worked cutting the Huon pines in appalling conditions, with no escape. To them it was a pig's trough — to us, rafters appreciating this rescued wilderness 160 years later, and venturing from a world full of pollution, destruction and overcrowding, it's a delightful sidestream of ferns and angel rain joining our continent's last wild river.

While climbing into The Pig's Trough to get a better view, I feel a link to those early felons. Since they stood in the same spot 160 years ago hardly any other humans have trodden this ground.

We have the throw bags ready as lifelines for any ejected rafters through the Newland Cascades — the last set of major rapids on the river. We're all exhilarated to negotiate it safely and whoop for joy.

"I didn't hear one banjo," mutters a relieved Dave.

That night we camp in caves — narrow slits in the rock face beside the river just below the Newland Cascades. From now on it's steady paddling on wide, flat water with little assistance from the current.

Kutikina Cave

Two days later we arrive at Kutikina Cave. This is the cave which rewrote anthropology books during the 1980s. It is the southernmost discovered habitation of human beings during the last Ice Age, and carbon dating of tools and weapons in the cave has revealed that people were living in the cave at least 40,000 years ago, possibly longer.

Although life must have been difficult, you could almost picture people going about their daily routine as we file into the spacious main chamber. It's been a regular daydream of mine to play my didjeridu inside this cave. It is very eerie. The sound reverberates around the chamber, and I know we all feel a connection with the first inhabitants of this, the 'spirit' cave. I feel very honoured to have been able to play the instrument in such a special place.

After leaving the cave we reach 'Big Fall', the very last rapid on the Franklin River.

"Two people have died in that rapid," says Wade.

"Looks harmless enough," I think as I clamber out

and start heaving gear over the boulders on the riverbank, so we can drag the rafts through by rope. From here on, until we join the Gordon River in blinding rain and biting wind, we settle back to steady paddling on the flattest, still sections of the river.

We reach the National Parks and Wildlife Service hut on the last day opposite Warner's Landing, where the Hydro Electric Commission landed huge bulldozers on river barges to build helipads and roads to the damsite all those years ago.

The hut is now a public shelter for day trip visitors who come upstream from Strahan across Macquarie Harbour. And Franklin rafters finishing their trip also use it, waiting for a ride either on the tourist boats or a pre-arranged seaplane. Last time I was here, the huts were used as the police camp during the Blockade. The little bedroom cubicles, which are now rotting and falling into disrepair, housed the police, I remember.

* * *

"Anyone free to visit some prisoners at Risdon?"

My brother James and I are standing in the headquarters of the Tasmanian Wilderness Society during the blockade to save the Franklin River and south-west wilderness from a hydro-dam. It's January 1983 and we're hitch-hiking around Tassie on a budget of five dollars a day for food, accommodation and transport.

"Some of them haven't had any visitors this week, so they'd love a chat," says the TWS volunteer to the group of people leafing through the pamphlets and buying posters.

At the Risdon maximum security prison on the outskirts of Hobart we join the other TWS people and visitors in chatting across the grilles to the greenies. They've been arrested and gaoled for a week while the Blockade, political manoeuvring, and media feeding frenzy are stampeding across Australian public life that summer.

The greenie I speak to is committed and firm, but nervous and uncomfortable in the remand section of the gaol. Spending a week on remand seems out of all propor-



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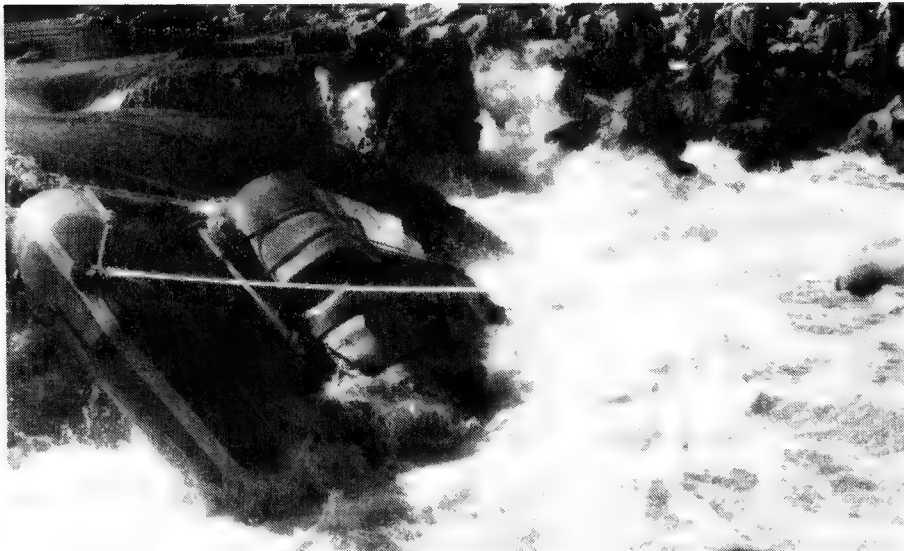
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'Big Fall' — the last rapid on the Franklin River, and deceptively dangerous.

tion to the 'crime' of trespassing in a national park. James and I know we're going down to the Blockade after the visit.

We get to the up-river camp on the Gordon River, after several days at the Base Camp, 'Greenie Acres' in Strahan, where we prepare for face-to-face blockading with non-violent action workshops.

We pull into the little jetty on the riverbank, near where the HEC is working to build a road to the dam site, and it seems incredible that there is a camp of hundreds of people hidden only 30 metres from the river. The forest is so dense. For several days we paddle the 'rubber dummies' — tiny rubber rafts — around the river to help obstruct the barges bringing up the heavy earth-moving machinery.

One misty morning we are paddling near three men from the Tasmanian Aboriginal Centre in another duckie. As a barge approaches Warner's Landing, they silently hold aloft the Aboriginal flag of black, red and gold in a two-fold protest. Apparently their flag later came to rest inside the Kutikina Cave farther up the Franklin River.

We would regularly get 'buzzed' by police helicopters. The steady thud of their propellers was apparent before

they hurtled over the hills on either side of the river, and swooped low over the duckies, before disappearing over the opposite hill.

From the river bank we'd occasionally see small groups of rafters paddling downstream as they'd finish rafting the Franklin.

"Hey, why don't you come and join in, now you've rafted it. You could help save it!" we'd call out.

"Gotta get back to the office by Monday," came one reply.

My brother James, Dr Stephen Smith of Hobart, and I, heave our packs and selves for hours through the bush along a transect line — a two metre wide

gouge hacked out of the rainforest by the HEC to mark a boundary for the no-go zone. They'd gone straight through giant Huon pine trees, and anything else which had stood in the way of their straight line to progress.

Eventually we reach the police camp. Our aim is to offer the police a cup of tea. To us it seems a good way to highlight the situation: arrested in a national park on a charge of trespassing, caught in the act of . . . offering the police a cup of tea.

"Right! You, you and you. You're all under arrest," he barked, and we spent the afternoon in the small compound behind their hut.

We were guarded in case, I suppose, we tried to make off into the forest to repeat the journey of Alexander William Pierce. He was a "pock-marked, blue-eyed little Irishman from County Monaghan", who escaped from the notorious convict settlement on Sarah Island in the middle of Macquarie Harbour in 1832, and survived the trip back to Hobart Town by eating his fellow escapees. We thought we wouldn't risk it just for trespass, even though we did spend a week in the remand section of Risdon prison for our efforts.

After being guarded for the afternoon on the day we were arrested, the arresting officer changed the scoreboard. This was a piece of board written up like a cricket scorecard, and each day the police would cross out the old tally and write in the new number of greenies arrested. They had the police scoring somewhere in the 300s and, predictably, the greenies had scored zero. We took a photo of our arresting officer next to the scoreboard just before they loaded us onto the police launch for the trip to Hobart, and prison.

* * *

Now I'm wandering around this little compound eight years later. It brings back lots of memories, but mostly it reminds me how the Blockade affected my philosophical views, and reinforced my belief that if you choose to act, you can change things. Individuals can, and do, make a differ-



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NON HYBRID

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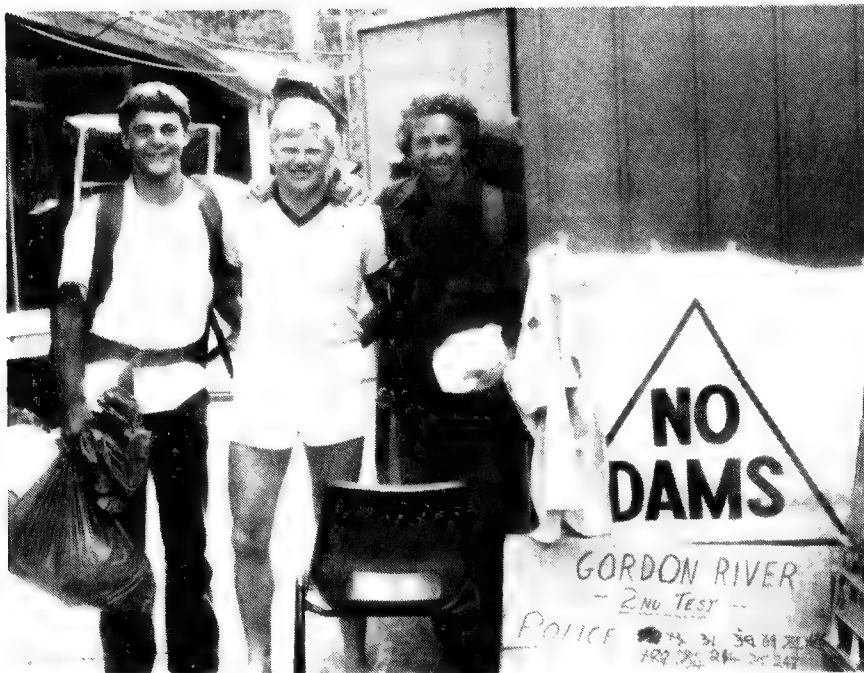
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Above (left to right), my brother James, our arresting officer, and Dr Stephen Smith with the Blockade scoreboard in 1983, and (right) yours truly with the same scoreboard in 1991.

ence. Two slogans come to mind, both from rock bands committed to the environment. *Redgum* left an impression on me when they said: "If you don't fight, you lose". And *Midnight Oil* had the same effect on me when they repeated Harry Truman's slogan: "It's better to die on your feet than live on your knees."

I was wandering around the hut lost in these thoughts, waiting for our seaplane to fly us back to Strahan on the last morning of the rafting trip. My jaw dropped and I cried out as I noticed a rubbishy bit of plywood under a bed. I pulled

it out. It said, "Gordon River, Second Test". Neglected and anonymous, it was the scoreboard from eight years ago.

The Franklin won the Test.

•World Expeditions operate rafting trips on the Franklin River every season from November till March. See their advertisement elsewhere in this issue for details and a brochure. Well-organised private rafting trips are also possible and rafting notes are available from The Wilderness Society, 130 Davey St, Hobart, Tasmania, 7000.

— How to create a rainforest —

This article continues the first part which appeared in EG 75.

Regeneration methods

These notes are a general guide only to help you establish a rainforest and we must stress that some points and different methods have been omitted due to limited space. Drawing up a management plan is a useful aid.

It is easier to divide the whole regeneration area into manageable sections. Usually one area has many different environmental factors affecting your eventual choice of regeneration method. For example steep grades should not be weeded on a large scale because there is a high possibility of soil erosion, so using a minimal disturbance method would be best suited in this situation.

One method we have used on our property is to weed small areas of heavily infested lantana with a Bobcat. This small machine causes a small amount of disturbance and allows selective weeding around existing native plants.

Once the lantana has been pushed into a shady corner the area can be broadcast with a green manure crop, which will return large amounts of organic matter to the soil and help reduce soil erosion.

Depending on the presence of any rainforest trees in the area you can expect a sudden burst of new growth — some may be rainforest plants, others exotic weeds. If you are not sure of the identity of the species leave them till they are identified. One area we weeded with a Bobcat has a large pencil cedar nearby which seeded just after the lantana was removed. The seedlings from this tree have established themselves and will act as pioneers for regeneration in that area. By weeding areas of heavy weed infestation you help natural regeneration. This will greatly reduce the number of trees you'll have to plant in that area. Other species which will not germinate naturally in the weeded areas can be

added now. These may include rare and endangered species and trees which cannot be brought in by natural means.

Your wettest month is the best month to plant out except in areas that receive heavy frosts during their rainy season. Planting out on a wet day when the soil is saturated helps reduce the effects of transplant shock.

We have found weed control to be very important once the trees have been planted. Weeding around the base of each tree to the drip line and mulching the trees if possible, helps significantly in promoting healthy growth. As weeds grow in the surrounding area they can be controlled either by hand or brush cutter.

In approximately eight years the canopy should be mingling and weed control should be minimal.

Minimal disturbance method

Other methods of regeneration include the minimal disturbance method. The principles of this method can be usefully incorporated into any other method of regeneration. This method is ideally suited to steep slopes and small areas which can be maintained. One metre diameter holes are made in weed infested areas and then pioneer trees are planted three metres apart.

Mulching and hand slashing of encroaching weeds is important.

Another method of minimal disturbance is the Bradley Technique. The main aim of this method is to encourage natural regeneration encompassing minimal human disturbance. Extensive hand weeding, working from good areas to bad, and not taking on more than one can handle are the principles of this technique. For this method to work it is important that many rainforest seed trees are present and that you can commit yourself to high labour input.

The main priority of any method of regeneration is to encourage canopy establishment.

Hints on growing rainforest seeds

A shade house is necessary if you are growing a large number of plants. Rainforest seedlings need 50 to 70 percent shade. A plastic waterproof cover will prevent heavy rain from destroying seedlings. Shelves should be a convenient height, free draining, and preferably on metal framing to deter vermin.

Growing the seeds

It is best to assume that most rainforest species have a short viability, hence it is best to sow them as soon as possible. Fruit should be removed from fleshy seeds because this will speed germination and remove any harbouring caterpillars in the fruit. You can shorten the germination time of some seeds which have hard cases (for example the blue quandong) by keeping them in a plastic bag for weeks or months until rootlets appear. Seeds covered by a hard jacket, such as red ash, can sometimes be individually rasped with sandpaper to help imbibing.

Germination can take anywhere between five days and two years, though the majority of seeds available through the Rainforest Nursery should germinate within eight weeks. Major causes of poor germination are sowing seed that is not fresh, and failing to keep the soil moist. Watering twice a day in warmer months may be necessary. Some seeds are sporadic in their germination, so it may be best to wait until the maximum number of seeds have emerged before potting on.

We recommend an organic potting mix for raising the seeds. Unimpeded drainage helps prevent fungus, but the mix should also have some water-holding capacity and aeration. Seeds should be sown thinly to avoid dampening off. Very fine seed can be mixed with sand.

Fertilising the seedlings

We recommend organic fertiliser for best results. If you do not wish to buy a commercial fertiliser, a cheap way is to turn poultry manure into liquid fertiliser. Place a bucketful of manure in a hessian sack and suspend it in a 44 gallon drum filled with water and place a lid on it. Jiggle it like a giant tea bag once a day to mix the fertiliser and after seven days it will be ready. When using this on seedlings make sure to water it down to the colour of weak tea and always water the plants well afterwards. Seedlings can be fertilised once a week.

Potting on

Once seedlings have reached approximately eight cm or true leaf stage, they are ready to be potted on to 75 mm sized pots. Remember: whenever potting on, water well before and after.

Planting out

Once trees reach the size required for planting out, approximately 10 to 15 cm, they should be hardened off. This simply means increasing the amount of sunlight over a week, starting at one hour for the first day. Water well during this time. It is best to plant out in the wettest season. Pick a rainy day or when the soil is saturated — this helps prevent transplant shock. If planting in dry conditions is unavoidable it is best to plant an inch down from the surface.

A mulch is highly recommended because rainforest trees respond well to an organic litter around their roots. Try one handful of blood and bone in each planting hole plus one dressing a year for up to five years or until the patch resembles a rainforest (that is, when the canopies of the trees are touching). Soil fertility should build up as trees age and the patch will become self-sustaining.

The rainforest

Within 12 years you should have created a 'walk through' rainforest, transforming an area into an environment of peace, coolness, privacy and tranquillity and a place for you and animals to visit or live in.

The Potato Harvest

Spuds got some bad press in the 1970s, but researchers and consumers have returned to recognising the food and flavour value of this important vegetable. Andrew McKenna's careful historical research makes fascinating reading to ponder over while you're out 'bandicooting' the potatoes in the tradition of South American Indians and Irish peasants.

by Andrew McKenna

Northcote, Victoria.

IN THE treeless, cold, and inhospitable Altiplano of Peru and Bolivia where little grows, the potato became the main item the Indians cultivated, ate and traded. The potato will grow in poor and stony soils, and some varieties can survive virtually up to the snowline. Maize, the staple of the Inca Empire, will not grow above about 3500 metres, so the potato became an integral element of Altiplano culture.

Due to heavy frosts, short growing seasons and soils generally unsuitable to agriculture common to the Altiplano, Indians quickly learned to prevent famine in lean years by preserving the potato in a freeze-dried form called chuno. It was made by an alternate freezing and thawing process, accompanied by a lot of trampling under foot to squeeze moisture out of the tuber.

Chuno is the basic ingredient of chupa, a highland stew, along with possibly a slice of dried llama meat or a guinea pig or two. In the early days of Spanish settlement, some entrepreneurs made their fortune by cornering the market in chuno and the better quality tunta, and supplying workers in the silver mines of Potosi.

The Altiplano Indians believed the potato was inhabited by a spirit, Axo-mama, as was everything in the physical world. Failure of a potato crop could be attributed to the weakness of Axo-mama, a divine, sexually mature female. In the Old World, the phallus was often worshipped and regarded as a symbol of fertility, but in most South American Indian cultures the creative life force was exclusively female.

Before the arrival of the Conquistadors, the highland Indians didn't break the soil with ploughs. They preferred a variety of tools and light digging sticks, wooden spades and stone knives for reaping. Their most efficient tool was the choqui-taclla, a two to three metre long wooden foot plough, hardened by fire or tipped with copper. Groups of men

worked side by side, each with their own choqui-taclla, intoning a chant to keep time:

"Be good to me God, you created me, made me the way I am.

Send me rain, may my seeds sprout.

Favour me, oh Father.

We live for you. For you we care for our crops."

The Quichua word "Jailli!" was chanted repeatedly as they worked through the fields, celebrating humanity's union with Nature.

Tillage was needed to weaken the coarse grasses of the Altiplano, and the women would traditionally follow the men, breaking the large sods with a hand pick. The association of women with the potato is also found in North American Indian culture. On the lower reaches of the Mississippi River, the women of the Chitimacha tribe used to

"For he, (one Monegan) is a rustic and . . . before they were married he used to salute her with kisses, affected primness, and potatoes."

—Ireland, around 1660.

collect what they called 'women-potatoes' — wild, tuber-bearing plants.

A stone potato was often planted in the field and an invocation made to Axo-mama. This was a widespread custom throughout the Americas, and in 1496, Bartholomew Columbus, Christopher's brother and lieutenant, attended the execution of six Haitian Indians, burned by the Spanish for burying images of Christ and the Virgin. The Indians had hoped that the new gods would fertilise their fields of corn, cassava, beans and boniato.

Sometimes great sacrifices were demanded for the potato spirit. One early Spanish chronicler tells how he observed a great procession in its honour, at the end of which a young llama was sacrificed and its blood poured over sacks of potatoes. In 'The History of the Kingdom of Quito', de Velasco relates how 100 children were sacrificed annually at harvest festivals.

Today, some high plains farmers still plant one potato in the traditional manner, with a digging stick, prayers and incantation. May is planting time in the Altiplano, and

services are often held in the potato fields, a burnt offering made, the ashes spread around, and the farmer prays for a successful crop.

"Thou hast to give me with all thy heart . . . the very things of the Inca thou hast to bring forth."

In one ceremony, the farmer makes a hole in the ground with a small digging stick, kneels over it muttering a prayer, places in coca leaves and potash, spits, puts a tuber on top and covers the hole back in with soil. The plough is still seen by some as a symbol of the domination of the stranger, and the first potato is planted to preserve the free soul of the farmer.

In the cycle of cultivation, the potato is usually the first crop to be sown following a fallow period, which is sometimes as long as nine years. The planting festival is accompanied by dancing and much drinking of maize chicha, as well as an even more potent brew fermented from the potato itself.

In the high plains there was little terracing of fields as there was at lower levels of the Andes. Guano, traded from coastal areas where sea birds left significant deposits, was sometimes used as fertiliser, but more commonly, llama and sheep dung, and ashes were, and are, applied to the soil.

Potato species

In the severe conditions of the Altiplano, the Indians must have chosen the species most suited to their needs and begun cultivating it, and through successive generations, selected early maturing, drought- and frost-resistant varieties. Without the potato, life at such altitudes would have been impossible.

Two broad groups of potatoes exist in the Andes, the 'sweet' form, (*Solanum andigenum*), and the 'bitter', (*S. ajanjuri* and *S. juzepczukii*). The bitter forms are particularly resistant to drought, wet and frost, their leaves and stem more compact and less likely to be damaged by hailstones, and they make the best chuno and tunta.

Distribution

After the crop became established in the Peruvian and Bolivian Altiplano, it spread north to Colombia and Ecuador, and south to Argentina and Chile, probably via the Inca Empire.

In the mountains of central Mexico, the people frequently included wild tubers collected from the surrounding forests in their soups and stews, but there the plant was never cultivated. North of the Isthmus of Panama the potato was generally never more than an emergency foodstuff.

In 1537, a Spanish scouting party reached a high plateau to the east of the Magdalena Valley in what is now Colombia. One member of the party described what is probably the first European encounter with the potato. When they approached an Indian village called Sorocota the inhabitants fled, and on entering the natives' huts, the

Spaniards found maize, beans and 'truffles', with "... scanty flowers of dull purple colour and floury roots".

The following year, Pedro Cieza de Leon described in his journal what the Indians called 'papas', a "... kind of earth nut, which, when it is boiled, is as tender as a cooked chestnut, but it has no more skin than a truffle and it grows under the earth in the same way".

It was not long before these 'truffles' arrived in Europe and were under cultivation there. They were fed to livestock long before they became a human food, and some physicians warned that they could cause indigestion, flatulence, rickets and even syphilis. One French provincial parliament even banned potato cultivation as it was believed they caused leprosy.

The Andean potato, *S. andigenum*, first flourished only in a few places, such as the south of Ireland and France where the winters were mild. Later, as natural selection and human cultivation produced earlier maturing and higher yielding varieties, cultivation of the potato became economically viable and it spread widely throughout Europe.

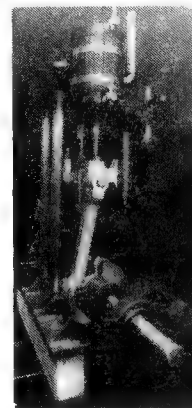
S. andigenum became *S. tuberosum* under European conditions, as the plant can evolve from one subspecies to another in relatively few generations.

Ireland

It is unknown exactly how the potato first arrived in

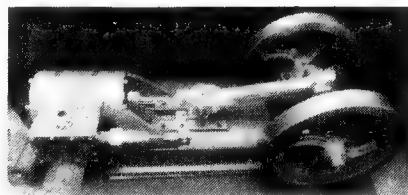
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Ireland. Sir Walter Raleigh certainly planted some at his estate in Youghall in the south of the country. He offered some seeds to a friend who promptly ate them, suffered indigestion, and failed to be impressed. A potato festival is still held in Youghall and a new queen is chosen annually.

The Spanish Armada was wrecked off Ireland's west coast in 1588, and potatoes may well have bobbed ashore from the ships' stores, to be planted in Kerry and Cork. Or the potato may have arrived in Ireland aboard captured Spanish vessels, but the plant has long had a special relationship with Ireland.

The first printed reference to the potato in Europe is in John Gerard's 1596 catalogue. Within 50 years of its introduction, it became the staple food crop of Irish peasantry.

By the mid 1700s the potato in Ireland was producing more food per hectare than any other food crop. The deep soils and moist cool temperatures of Ireland suit the potato perfectly, and with a little work, even the boglands proved to be remarkably suitable to potato cultivation. The spread of the potato accompanied a population explosion — a population almost totally dependent on the potato.

Cultivation method

The Irish used the 'lazybed' system for potato cultivation. In essence, this is similar to the original system used by the highland Indians, but it is unlikely that the Indians' agricultural practices were imported with the tubers.

Nearly any sort of soil was suitable — bog or mountainside — and a strip of land would be manured with whatever was available: seaweed, animal manure, turf from an old house or peat. A ditch was dug around the strip, the dirt thrown on top of the manure, and the tubers planted in that. The soil needed no tilling, the bed could be used as a clamp to store potatoes over winter, and if all the tubers were not harvested a crop could be harvested the following year. The Irish peasant, often having to abandon his farm to marauding armies and take to the hills, could return and still reap a harvest.

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Food value and famine

A strip 400 to 700 metres long and two to three metres wide would be enough to feed a family, as long as it was supplemented with occasional milk, pork, bacon, cheese, the blood of a cow, or a rabbit poached from a nearby Estate. But often, no supplements were available, and before the Famine, some peasants were eating up to three kg of potatoes a day.

In 1690 John Stephens wrote in his Journal: "The meaner people content themselves with little bread but instead thereof eat potatoes, which with sour milk is the chief part of their diet. They drink for the most part water, sometimes coloured with milk; beer or ale they seldom taste, unless they sell something considerable in a market town."

Because of the potato, thousands of people were kept from starving, but because of the potato, possibly a million more died during the Famine of 1845-51.

In 1829 a visitor to Ballygawley, County Tyrone, wrote: "The family were at dinner: the repast consisted of dry potatoes only which were contained in a basket set upon the pot in which they had been boiled . . . the potatoes were only half boiled. We always have our praties hard, they stick to our ribs and we can fast longer that way."

Between 1797 and 1845 there were 20 failures of the potato crop, and each failure involved some deaths due to starvation or accompanying disease. The narrow genetic base of the potato in Ireland meant if a disease were to appear, few if any of the plants would be resistant. There was a severe famine in 1740 due to the failure of the potato crop, which may have wiped out nearly a third of a population of one and a half million, but the Famine of 1845-51 is the best documented, and was general throughout the country. It hit the potatoes like a typhoon, turning healthy green crops into stinking black fields in a matter of days.

Oh the praties are so small
Over here, over here,
Oh the praties are so small
That we dig them in Fall,
And we eat them skin and all,
Full of fear, full of fear.

Oh I wish we were all geese
Night and morn, night and morn,
Oh I wish we were all geese,
For they live and die in peace
Till the day of their decease
Eatin' corn, eatin' corn.

Oh we're down into the dust,
Over here, over here,
Oh we're down into the dust,
But the Lord in whom we trust
Will yet give us crumb for crust
Over here, over here.

Llapingachos con Salsa de Mani from the highlands of Ecuador

2 kg potatoes, peeled and diced
1/2 cup sliced onion
2 cups fresh cheese
pork dripping (or butter)
salt to taste.

Boil the potatoes till they're soft, mash, add 1/2 a cup of the water they were boiled in, and then add the onions and salt to taste. Cover with a cloth and leave it at least three hours in a warm place so the mixture becomes a little sour. Add cheese and form it into Llapingachos, (patties two cm thick). Fry them over a medium heat in pork dripping or butter till golden brown. Serve with salad and salsa de Mani (peanut sauce).

Salsa de Mani (peanut sauce)

1 tablespoon pork dripping or butter
3/4 cup of diced onion
2 teaspoons of salt
1/4 teaspoon of cumin seed
black pepper
3/4 cup of peanut butter
3 cups milk.

Mix and heat the milk and peanut butter over a low flame for 15 minutes, stirring so it doesn't stick. Add the herbs. Add the onion and heat for five more minutes. A beaten egg may be added if desired.

Traditional Irish stew

1 kg middle neck mutton or lamb
1 kg potatoes
1/2 kg onions
750 ml water or stock
salt and pepper
chopped parsley.

Divide the meat into portions. Peel the potatoes and onions. Halve the potatoes and cut them into thick slices, quarter the onions. Put the meat, potatoes and onions in layers in a large pan. Pour in the stock and seasoning. Bring to the boil, reduce the heat and simmer for 1 & 1/2 to 2 hours. Serve it sprinkled with chopped parsley.

The only rules for Irish stew are mutton and potatoes. You can also add such things as pumpkin, carrots, cauliflower, broccoli, cabbage and mushrooms.

Approximate cost: six shillings (this recipe is from a very old book).

A priest travelling from Cork to Dublin in 1846, described how in six days the healthy potato crop had turned into "a wide waste of putrefying vegetation".

More than 800,000 and possibly more than a million out of a population of eight to nine million died of hunger, typhus, cholera or other diseases related to malnutrition between 1845 and 1851. More than one and a half million emigrated during the same period. A pattern of emigration was established, and Ireland's population has never recovered to its pre-Famine level. During the Famine, Ireland was a net exporter of grain and beef, mainly to England, and although the Famine was widely publicised in Britain and Europe, it was largely allowed to run its course.

An Indian legend tells how a chief on an island populated by gulls wanted to make love like the gods, who shook the Earth and caused tidal waves with their lovemaking.

The chief, anxious to surprise them at it, swam over to their forbidden island, but all he managed to see was a huge lizard with its mouth wide open and foaming, and fire leaping from the tip of its tongue.

The gods buried the chief in the ground for his indiscretions, and as punishment for his curiosity they covered his body with blind eyes and condemned him to be eternally eaten by others.

Ever since, the potato has been an invaluable gift to the world. The Conquistadors went to the New World planting the cross and the gallows, and plundering the fabulous wealth of Indian civilisations, but the value of the potato far outstrips the worth of gold and silver long since melted down into coin.

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EARTH GARDEN REVIEWS

— Edited by Sophie Masson —



The Edge of the Rainforest
by James G Porter
University of Queensland
Press, \$11.95.

This is the latest book in the excellent Young Adult series which has won UQP much acclaim. It is especially interesting for Earth Garden readers, not only because it mentions the magazine three times, but also because it is about a familiar situation. It involves the struggles endured by people who want to 'make a go of it' on the land. In this case, the Emersons, Rachel and Karen, live on a co-operative farm. When the prejudice of a local farmer makes their farm and livelihood precarious, they — and the farmer's sympathetic son, Mike — fight back. It is a story of true grit and determination, of hassles and final triumph. A good read, even if at times I found the style a little bald.

**The Gaia Atlas of the
First Peoples**
by Julian Burger
Penguin Books, \$25.00

This is a most informative and interesting book, although at times it makes for rather depressing reading. It is the story of the indigenous, or first, peoples of the world, their displacement and dispossession, and, in modern days, their pride and remarkable fight for survival. The

book is divided into several sections, from 'way of life' to 'crisis' and 'alternative visions'. The ways of life of these diverse peoples are brought into sharp focus, the history of their contact with invaders documented, and their own visions for the future detailed. Indigenous peoples, as the book makes clear, are in the forefront of the ecological crisis — for they are its first victims, and yet, paradoxically, humanity's hope for the future. A most worthwhile and thoughtful book.

**Building out termites.
An Australian manual
for environmentally
responsible control.**

by Robert Verkerk,
Pluto Press, \$19.95.
Reviewed by Dr Robert
Rich

This is the best publication I have read on termite control. The author is a practising pest control expert and a founder of Systems Pest Management, the Sydney based company which has pioneered the control of insect pests without the use of chemicals.

The book manages to be both readable and scholarly. Over the past few years I have accumulated an extensive file on termites, the methods used to control them and the effects of termiticides on health.

Mr Verkerk has managed to include all this information and more, and always in a helpful way. For example, when describing a new method of preventing termite entry into a house he lists contact addresses where further information can be obtained. Not only is the information comprehensive, it is also accurate — something not found in every technical book.

A must for every builder and even house owner where termites are active, this book should also be on the bookshelf of every council building department. I consider that I have become somewhat of an expert on termites recently, but I learned quite a lot just from one quick reading of this book. The clear layout and many self explanatory diagrams help to make *Building out termites* an excellent publication.

It is becoming increasingly difficult for authorities to insist that people risk their health by dosing their houses with huge volumes of poisons. Hopefully this book will help to reverse the official opinion.

**Through the Kitchen
Window**
by Susan Hill, illustrated
by Angela Barrett
Penguin Books, \$16.99

Set around the kitchen and the unfolding of the seasons, this lovely

book is unmistakably English, but it is still relevant in parts of Australia, especially to areas such as ours (in snow-line Northern Tablelands), Tasmania, and the Snowys. It features reflections on the seasons, their problems and pleasures, and offers many good recipes to suit. For example, you get the lovely elderflower ice, summer pudding, marmalade and bread. The music of the words, the clarity of the images, combine with atmospheric pictures to make this a lovely present.

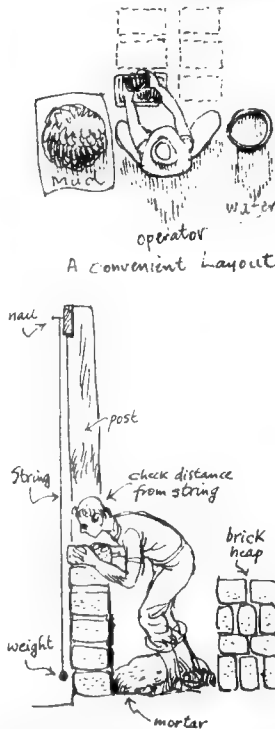
Mud Brick Techniques
by Ron Edwards,
The Rams Skull Press,
\$8.50. Reviewed
by Greg Simmons

"Everyone in the world should have the right to build their own home. Not only build their own home but build it just as they want it and free from the interference and dictates of Big Brother."

With these words from his introduction firmly in mind, Ron Edwards has written a book on building a house from mudbrick that is an excellent guide and incentive for all potential muddies. And no doubt with Ron's obvious knowledge of the subject, there are heaps of tips on tools and techniques for the more experienced earth builder.

The book looks at all aspects of building with mud from beginning — finding and preparing the soil — to end — plastering and fitting doors and windows. Ron's somewhat philosophical approach to the subject is presented in a matter of fact way that makes this a most accessible and readable book. The 130 or so drawings complement the text so well that the reader can be left with no doubts as to what what is being described.

Ron's main purpose is to show how building from mudbrick can be a satisfying task rather than just a strenuous drudge, which, he realises, most people expect it to be. He believes that there is no need to make it hard, when you can make it easier. "Take comfort," he writes, "as you stand there sweating, that a good part of the exertion has been



**How to make it easier from Mud
Brick Techniques**

caused by your own stupidity in not panning the job properly." His aim in *Mud Brick Techniques* is to guide builders through the process properly and efficiently.

This book has all the ingredients to turn messy muddlers into masterful muddies.

**Growing capsicum and
chillies/macadamias/
lychee in Queensland**
Various authors,
**Queensland Department
of Primary Industries**

This is a range of handbooks for those intending or already involved in small or large scale cultivation of various crops, specifically in Queensland. The books cover capsicums and chillies, macadamias and lychee. (Two books have been produced for lychee dealing with northern and southern Queensland separately.)

Each handbook follows a similar approach to its subject and includes information on establishing the crop in an orchard or plantation, and managing its growth period and harvest. A management

calender is an interesting feature of the lychee and macadamia books. There is advice on post-harvest handling and marketing of the crop as well as the important factors of finance and economic considerations such as sales and quarantine requirements for interstate markets. Although not organically based, most of the information is relevant to all forms of cultivation and should prove most useful for new or established growers.

Growing capsicums and chillies costs \$6, *Growing macadamias*, \$10 and the *Growing lychee* books are \$10 each. All are available from QDPI Publications, GPO Box 46, Brisbane, 4001.

What Bird Is That?
by Neville Cayley
Angus and Robertson,
\$19.95

This is the reissue of a classic and much-loved book. For any bird watcher, Neville Cayley's book is a must. It gives good information on the hundreds of species of birds in Australia, within their habitat, which makes it easier for spotters. There are also sections on kinds of birds, for instance, diurnal birds of prey. There are colour plates featuring all the birds in this book, as well. An excellent book for the shelf of any Nature lover.

Science for Kids — Water
Science for Kids — Light
both by Neil Ardley
**Little Ark (Allen and
Unwin), \$11.95**

These are excellent books, perhaps the best of their kind that I've seen. They feature simple experiments with ingredients that are cheap and simple to obtain, and aim to teach children through a 'hands on' style. Our nine year old spent several hours following the experiments, proclaiming herself to be delighted with the results — because they actually worked! The books are attractively presented, with durable covers, large and colourful pictures and clear, informative text. Recommended.

EARTH GARDEN UNCLASSIFIEDS

Unclassifieds are 40 cents per word, prepaid. The deadline for the next issue is 9 August.

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EG45: Waterworks — shifting water with sun, wind and water ... solar electric pumps ... gravity feed ... hydraulic ram ... Platapump ... the cyclone-defensive house ... bunya nuts ... 12 V problems.

EG46: Windworks — wind generators ... solar trackers ... water turbines ... 12 V bilge pump ... herbal shampoo ... compost loo ... Tanzania ... the algae pond ... 12 V lights ... Krypton lamps.

EG47: Practical projects ... hanging a door ... household plumbing ... waterwheel pump ... cycling Mongolia ... the sun-pump ... livestock ... Aussie yurt ... pigeon pea ... bee tools ... Peter's pedal machine.

EG48: Bob Rich's rammed earth primer ... 1930s Dab, Pug and Pise, compost muncher ... sushi and asashimi ... Energy Pulse ... buying an energy system ... animal shelters ... hand dug wells ... ferrocement tank ... growing firewood.

EG49: Chiorella culture ... Solar Pack ... Peter Pedal's TARDIS ... just 6 volts ... Poi Hereforda ... Babaco ... Genteel frugality ... Evening Primrose ... home-made ladders ... ferrocement roofs ... building blues ... immersion heaters ... HARD TIMES hints ... Soper with Chaucer.

EG50: Land ethics ... Sustainable agriculture ... Biodynamics ... Keyline, Organic, Permaculture methods ... healthy sweets ... bamboo ladder ... happy gardening ... homegrown spuds ... stone & mudbrick arches ... Earthbricks ... ferrocement tank ... poultry pyramids ... Energy Pulse.

EG51: Australian solar kit homes ... self-sufficient house ... solarium ... energy updates ... thin film solar panels ... ram & sun pumps ... two-faced stonework ... river stone & mudbrick ... earth building access ... kero refrigeration ... a shunt regulator ... veggie basics ... corn is king ... 3-ply spinning ... loo review.

EG52: Simple solar electric systems ... 12V fridge ... 12V record player ... EG interviews ... composting with earth-worms, glazing skills, mudbrick pictures.

EG53: Horse drawn gypsy holidays ... solar rehigation ... cottage gardens ... organic scale control ... do-it-yourself land transfer ... bartering ... chaff cutters ... controlling scale ... natural cow care ... solar fridge design ... earth bricks made easy ... the Land Rover.

EG54: 12V solar lighting and appliances ... tomatoes ... chick brooder ... inverters for 240V appliances for solar systems ... boring for water ... festivals.

EG55: Mudbricks from heavy clay ... managing plant diseases ... building a baby's cradle ... a biodynamic farm ... making cider ... a hot drum warning ... a solar control board ... thoughts on solar retailing ... thyme ... owner builder apprenticeship.

EG56: Energy-efficient house design ... Battling in the bush ... costing an owner-built home ... controlling fruit fly organically ... build a home food smoker ... windpower ... towards food self-sufficiency ... simple devices for lower voltage ... solar tacking ... toxic mushrooms ... leaks ... motorised scythes.

EG57: Building with children ... solar trackers ... eel skin mocassins ... towards food self-sufficiency ... calculating sun angles ... how to roust bushbodies ... the elder tree ... lemon grass ... rammed earth corners ... ockerinas: a potter's livelihood.

EG58: Making a living from pottery ... Battling in the Bush, Part III ... Rainbow Power Company ... Towards food self-sufficiency ... Organic gardening column ... Hool care for donkeys ... Saving world rainforests ... Cob earth building ... Solar car race results ... Creative beer-making ... Build a geodesic dome planetarium.

EG59: Buying a bush block ... Living in yurts ... Borage — herb of gladness ... Biodynamic farming ... Growing cabbages ... Raspberries ... Earthworm cultivation ... Using a bait castnet ... Torches in the bush.

EG60: Owner-building octagons ... Growing mushrooms ... Alternative pasture ... Growing rosemary ... Bush tucker ... Low speed generator ... Sailing to the far north.

EG61: Making tufos ... Buinding a mudbrick holhouse ... Using wood heaters ... A herbal tea farm ... Growing grain ... 12 volt amp and turntable ... Cattle diseases ... Lemon balm ... donkey training ... Resharpener a bushman's saw.

EG62: Breeding angora goats ... Donkey training ... Make a pioneer work shirt ... Pickles and chutneys ... Frost-free gardens ... Growing sprouts ... Trees for shelter and woodlotting ... growing fennel ... Cost comparison of home heating ... Building an African village.

EG63: Special 'Bicentenary' issue — Aboriginal Australia and selfreliance ... Traditional shelter and agriculture ... Rangers at Kakadu ... Gary Foley interview ... Mudbrick desert community centre ... 19th Century Aboriginal farmers ... low voltage washing machines ... Roofing tips ... Battery warning ... Fostering calves.

EG64: Organic farms in Spain ... Buying at clearing sales ... Making and laying a shingle roof ... Basic home electrics ... Dealing with building inspectors ... The Seed Savers' Network ... Backyard astronomy ... Mudbrick plastic coats ... Herbs: watercress ... whole-some education.

EG65: Puppet making ... Making pasta ... Television-free zone ... Make a computer operated blender ... Food irradiation update ... Cherryrum opal recipes ... Earth sculpture ... 12 volt wiring basics ... Fallen timber into firewood ... Angelica.

EG66: The Demountable Throne ... The Healthy HouseCow ... Confest '89 ... EARTH GARDEN INDEX, EG 51-65 ... Egg gluts ... bees ... Solar powered workshop ... Insect lit us ... Home power batteries.

EG67: Getting rid of termites ... Gourd Festival ... Battery terms ... Spanish organics ... Colonial Blacksmith ... Small business ideas ... Saving rainforests.

EG68: Buying a wood heater ... Access to steep land ... A frost-free winter garden ... Self-sufficiency, Depression style ... Witchood Farm ... Mulled wine ... Season by Season.

EG69: Home grower's perfumes ... Materials for solar power systems ... Coping with calving ... Dyer's wood ... Cream, glorious cream ... Conveyancing tips ... mulching potatoes ... Safe building practices, et beaucoup d'autres trucs.

EG70: Building pole houses ... A ten dollar workbench ... Weeds in the kitchen ... Foot problems of sheep ... New solar controller ... Newmicro hydroelectric generator ... Chervil.

EG71: Certifying organic produce ... Tarragon ... growing kiwifruit ... East Gippsland forests ... Build a fret saw ... angophoras ... The Natural House ... grow bush tucker ... Hydro power.

EG72: Lining a cabin with 'tree' logs ... Fire without matches ... The Zen of digging ... Butter making ... Suburban Earth Gardening ... bushfire preparation ... making bird nest boxes ... tree lucerne.

EG73: Outback camel safaris ... Tipi living ... using scythes ... building in granite ... growing caraway ... looking for land ... broad beans by the sea ... ozone layer protection.

EG74: Termite breakthrough ... Worm farming in Western Australia ... Life on a verandah.

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EG75: Steam engines and solar powered ConFest ... Growing quondangs ... no-till farming ... Harvest work timetable ... Creating a rainforest ... Preserving tomatoes ... Sine wave inverter ... Life at Ontos.

